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THE FLORIDA LAND BOOM

HOMER B. VANDERBLUE

A STUDY OF UTILITY FINANCIAL STRUCTURES: DISTRIBUTION OF INCOME

A. E. PATTON AND O. GRESSENS

THE SHARE OF AGRICULTURE IN THE NATIONAL INCOME

HENRY C. TAYLOR AND JACOB PERLMAN

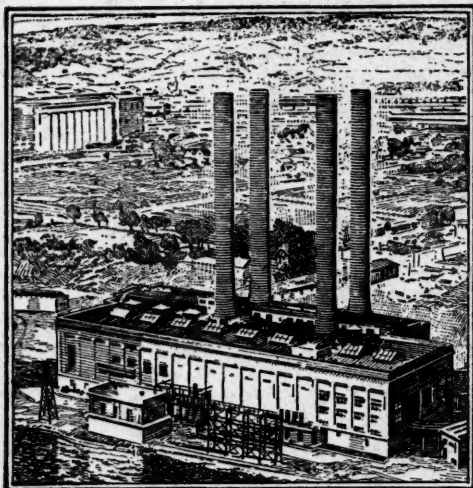
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VOLUME III NUMBER 2

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THE INSTITUTE FOR RESEARCH IN LAND ECONOMICS AND PUBLIC UTILITIES

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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

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VOLUME III
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THE FLORIDA LAND BOOM¹

By HOMER B. VANDERBLUE

MUCH has been written of the land boom which afflicted certain areas of Florida, but a complete statistical record of the boom and the subsequent reaction, or anything resembling such a record, is lacking. In part, this is due to the psychology of all land booms, in part to the rapid changes that took place, and also to the lack of adequate data for the areas which were affected by the boom and its inevitable reaction.

The popular mind, which quickly seizes sensational news, seemed at times to picture the whole state of Florida

in an orgy of real estate speculation. This, of course, is not accurate. Not all parts of the state were equally affected, and, indeed, the worst phases of the boom were confined to a few areas, mostly along the seacoast.² Some sections of the state, notably northern Florida, were scarcely affected at all, because of the efforts of some farsighted people in checking boom tendencies in their early stages. In these communities one may find some enterprises that appear to have a reasonably good outlook for the future, based, as they are, on two undoubted assets of the state—

¹EDITORIAL NOTE. This is the first of two articles by Professor Vanderblue giving some statistical records of the course and effect of the land boom in Florida. The second article will appear in the issue for August, 1927.

²Not only was the boom at first confined mainly to the East Coast, but on the East Coast it was confined mainly to the short stretch of 60 miles between Palm Beach and Miami. Very shortly thereafter, however, it spread to the West Coast and to the citrus fruit section in the center of the state. Activity was stimulated at Jacksonville very late;

and West Florida seems to have been affected hardly at all. While Pensacola was not "boomed," considerable land speculation occurred there and on both St. Andrews Bay and the mouth of the Apalachicola. Local booms developed in the coast towns of Mississippi and Georgia, and also in the region of Asheville, North Carolina, both promoted in imitation of the Florida adventure. The opportunity was open for land promoters to cut up the hillsides and fields around the Muscle Shoals; and an office of one such promoter was still open in late November, 1926, on West Flagler Street, Miami.

namely, the climate and agricultural or other resources of the interior.

The boom culminated in the late fall of 1925 after a summer of frenzied activity; but it was not until the spring of 1926 that the reaction became severe and not until the following summer that the reality of the collapse was generally acknowledged. That the feverish activity had slowed down was clear to all; but the reaction was variously referred to as a "healthy breathing time" or a "mere interruption," which would be followed by a resumption of the boom on a "saner and more conservative basis." Even after the West Indian hurricane of September 19, 1926, optimistic statements continued to pour from the state—to such an extent, indeed, as to embarrass the American Red Cross in its work of raising relief funds.³ Hardly a week had passed after the visitation of the storm before newspaper correspondents were writing of the "new and lasting boom expected in Miami."⁴ The simple truth is, however, that the storm was merely an incident, albeit a tragic one, in the general debacle; for the Florida boom, like other land booms in the past, had already collapsed with its own weight, even before the occurrence of the hurricane.

But if a complete statistical record of the boom and the subsequent reac-

tion is lacking, there are nevertheless certain series of economic data from which a very good picture can be traced month by month. In part, these are directly concerned with land sales (real estate transfers in Jacksonville, Miami, and Orlando) and construction activity (as evidenced by building permits in Miami, Tampa, and Jacksonville); in part they are of a more general character, as, for example, the revenues of the Florida East Coast Railroad and the payments by check (bank debits) in Tampa and Jacksonville. Debits figures are not available for Miami, but figures for bank clearings exist for the interval since January, 1924. By using these data in connection with the monthly revenues of the Florida East Coast Railroad and the number of real estate transfers at Miami, a picture of the activity on the lower East Coast (where the boom attained the most extravagant phases) is obtained; and the other series of data cited above give a sufficient sample to show the course of the boom elsewhere in the state.

The Statistical Record: Before the Boom

Since the boom started on the East Coast and most of its wildest phases were confined largely to that section, it is instructive to examine the statistics

³ Telegrams to this effect passed between Mr. John Barton Payne, chairman of the American Red Cross, the chairman of the Red Cross of Richmond, Virginia, and the mayor of Miami. These were widely quoted in the press of that period. The reasons for the attitude of the citizens of Florida were explained by Mr. Peter O. Knight of Tampa, one of the counsel for the Seaboard Air Line in Florida, in an interview, "Florida Damage of Local Import," *Wall Street Journal*, October 8, 1926. Mr. Knight, while acknowledging that seventeen or eighteen thousand persons were in need of assistance, said: "The same Florida is still there with its magnificent resources, its won-

derful climate, and its geographical position. It is the Riviera of America and always will be, within twenty-four hours and less of eighty millions of prosperous people, and the same causes that have developed and produced Florida so rapidly within the last few years will cause a greater and more permanent Florida to be developed in the future." Moreover, he was fearful lest the Red Cross, in its zeal to raise additional funds to take care of the distress, "do more damage permanently to Florida than would be offset by the funds received."

⁴ *New York Times*, September 29, 1926, article signed by Warren Irwin, Correspondent.

throwing light upon the development of that portion of the state during the period of nearly 30 years which followed the completion of the railroad to Miami in 1896. In Table I and Charts 1 and 2 are shown the statistics, per mile of road, for the total operating revenues, the ton miles of freight traffic, and number of passengers carried one mile of the Florida East Coast Railroad since 1896.⁵ These show that the rate of growth has been greater during the later years of the period than during the earlier years. Despite this fact, however, the curves rise very sharply in both 1924 and 1925. The latter years clearly stand out, therefore, as the boom years, following a period of steady growth.

Other series of annual data reflecting conditions elsewhere in the state—

as, for example, the clearing house exchanges in Tampa and Jacksonville, the principal established business centers in the state, and the loans and deposits of the national banks in Florida—also testify both as to steady advances year by year, with only minor setbacks in years of great business depression, as, for example, in 1907-08 and 1921, and as to the sharp rise in 1924 and 1925. Curves illustrating these conditions are shown on Charts 3 and 4, with the supporting data presented in Tables II and III. Some allowance must be made, of course, for the higher level of prices which serves to inflate these series; but even after making rough allowance for this factor in the examination of the curves, it is clear that there has been a very marked increase in the rate of advance in Florida during recent years,

⁵The statistical adjustments undertaken in the course of this study have been made by Miss Dorothy Wescott, of the editorial staff of the Harvard Economic Service. In general, the methods used are those developed by Professor Warren M. Persons and first described by him in the

1919 volume of the *Review of Economic Statistics*. For a less technical discussion see *Economic Statistics*, by W. L. Crum and A. C. Patton, Part III, "The Analyses of Time Series," and Chapter XI of the present writer's *Problems in Business Economics*.

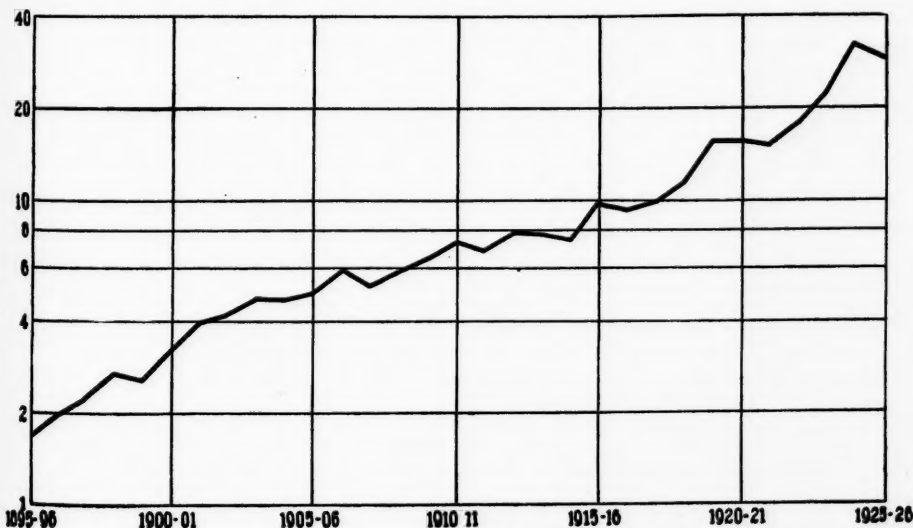


Chart I. Total operating revenue, per mile of road, of Florida East Coast Railway; years ending June 30, 1896-1926. (Unit: \$1,000.)

and especially during the years 1923-1925.

It is clear, furthermore, from the curves shown on Charts 1 to 4, not only that economic conditions in Florida have been improving steadily over a period of years, but that a substantial prosperity had been achieved by 1923 when the boom, with its rapid uprush and sharp crash, changed the

whole aspect within a relatively short interval of time. In 1924 and 1925 unusually easy conditions in the money market—always a favorable factor in generating a land boom—made it possible to finance probably the wildest speculation in vacant real estate, both above water and below it, which has occurred since the 30's and 40's when the West was being opened to settlement.

The relatively low yield on high-grade investments made it possible to tempt investors into purchasing real estate bonds (paying 8%) which were secured by new structures located in the boom territory. Bonds in \$100 denominations were offered, as well as the higher denominations; and these "securities" were sold by mail and upon term payments, being advertised widely in magazines with the slogan "With Security a Certainty." These bonds were secured by mortgages on hotels and apartment houses (some built and some unbuilt); and in several instances the erection of residences was financed by blanket mortgages on a group of individual houses. Such groups came to be known as "residential units." As late as December 20, 1926, the writer received an offering of "seasoned" 8% bonds secured by completed buildings—hotels, office buildings, apartment houses, and the like—mostly in the Palm Beach-Miami area. In January, 1926, a circular describing an issue (\$1,000,000) of 7% collateral trust bonds "Secured by Guaranteed First Mortgages on Improved Real Estate in Prosperous and Substantial Cities of Florida, Principally in Miami," was received from another Miami house. At this time a lender seeking to lend in an old community (such as Daytona Beach), where the security was ample even considered on pre-boom basis,

TABLE I. SELECTED SERIES OF OPERATING STATISTICS OF THE FLORIDA EAST COAST RAILWAY*

Year Ending June 30	Total Operating Revenues Per Mile of Road† (Unit: \$1,000)	Ton Miles of Freight Traffic (Unit: 1,000,000 tons)	Number of Passengers Carried One Mile (Unit: 1,000,000 passengers)
1896	1.697	20.223	10.238
1897	1.951	16.819	11.025
1898	2.289	19.374	14.320
1899	2.727	23.642	17.368
1900	2.586	31.362	15.724
1901	3.266	38.540	19.462
1902	3.994	43.330	22.852
1903	4.161	43.106	25.948
1904	4.790	54.819	27.869
1905	4.649	46.527	32.263
1906	4.942	52.146	32.720
1907	5.912	80.744	41.852
1908	5.160	69.979	39.114
1909	5.784	87.555	41.949
1910	6.324	95.210	46.479
1911	7.172	121.013	60.371
1912	6.896	118.456	63.423
1913	7.823	143.200	69.202
1914	7.665	149.521	76.076
1915	7.400	163.705	69.390
1916	9.670	281.387	73.687
1917	9.032‡	335.695‡	85.477‡
1918	9.809	380.678	81.631
1919	11.231	411.894	101.222
1920	15.196	478.621	117.418
1921	15.059	340.778	96.400
1922	14.893	342.141	92.833
1923	17.767	450.600	113.256
1924	22.351	589.835	142.929
1925	31.828	792.738	241.121
1926	29.377‡	842.680‡	241.463‡

*Sources of data: *Poor's Manuals of Railroads*; *Interstate Commerce Commission Reports on the Statistics of Railways in the U. S.*; Correspondence from Florida East Coast Railway Co.

†Obtained by dividing "Total Operating Revenues" by "Number of Miles Operated."

‡From 1917 through 1926, data published are for years ending December 31; for 1916, data published are for both year ending June 30 and year ending December 31. The data for years ending June 30, 1917-1926 used in this study have been obtained by using the year 1916 as a base and by assuming that the same percentage changes exist between the years ending June 30 as between the years ending December 31.

could have secured (with 10% to 15% commission, which was freely offered) a net return of 10% to 12%.

The latest phase of the financing of land developments by security sales came with the public offering of "tax free" municipal bonds by "cities" which had been created by promoters or had grown very rapidly during the boom. Such, for example, were the several issues of "improvement bonds" of the city of Coral Gables. The proceeds from these bonds, according to the circular which offered them, were to be used for "park, street, sidewalk, municipal building, and other improvement purposes"—in other words, for land promotion purposes. The February 21, 1927, issue of the *Wall Street Journal* announced the sale of \$4,532,000 bonds, to finance certain "improve-

ments": \$1,750,000 for a public golf course, \$1,782,000 for municipal ownership of the street railway, \$300,000 for a municipal auditorium, \$200,000 for a municipal swimming pool, \$100,000 for additional fire stations, \$50,000 for an emergency hospital, and \$250,000 for a city hall. Hollywood, another town which grew up in the boom years, issued \$1,000,000 in 6% bonds shortly before the hurricane; and other and older "cities" of the state, many of them in fact nothing more than small towns (for example, Fort Lauderdale, Fort Pierce, Kissimmee, Lakeland, Vero Beach), sold "municipals" for financing improvements. "Improvements" included such varied projects as cited above for Coral Gables, and, in addition, recreation piers, incinerators, sea walls, libraries,

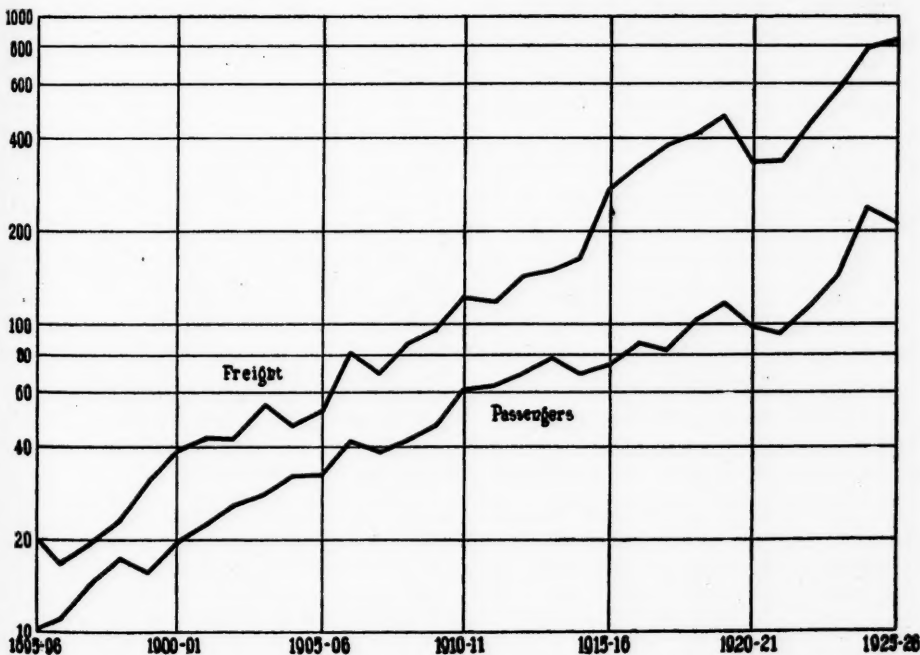


Chart 2. Ton miles of freight traffic and passengers carried one mile of Florida East Coast Railway; years ending June 30, 1896-1926. (Units: freight, 1,000,000 tons; passengers, 1,000,000 passengers.)

and cemeteries. The last of the Florida state bonds were paid off on October 12, 1926; but the counties and drainage, "inlet," and "road and bridge" districts (some newly created) added to the flood of Florida "non-taxables." The existence of this heavy burden of public debt of the local taxing bodies constitutes an unfavorable element not usually emphasized in discussions of the Florida situation during and after the boom. It will be especially so should tax receipts fall off sharply.

A graphic picture of the boom and boomers has been drawn by Walter C. Hill, vice-president of the Retail Credit Company of Atlanta:⁶

Lots are bought from blue-prints. They look better that way. Then the buyer gets the promoter's vision, can see the splendid curving

boulevards, the yacht basin, the parks lined with leaning cocoanut trees and flaming hibiscus. The salesman can show the expected lines of heavy travel and help you select a double (two-lot) corner for business, or a quiet water-front retreat suitable for a winter home. To go see the lot—well, it isn't done. In fact, often it isn't practicable, for most of the lots are sold "predevelopment." The boulevards are yet to be laid, the yacht basin must be pumped out, and the excavated dirt used to raise the proposed lots above water or bog level. Then they will be staked, the planting done, and the owner can find his lot.

Around Miami, subdivisions, except the very large ones, are often sold out the first day of sale. Advertisements appear describing the location, extent, special features, and approximate price of the lots. Reservations are accepted. This requires a check for 10% of the price of the lot the buyer expects to select. They are numbered consecutively as they come in. On the first day of sale, at the promoter's office in town, the reservations are called out in their order, and the buyer steps up and, from a beautifully drawn blue-print, with lots and dimensions and prices clearly shown, selects a lot or lots, gets a receipt in the form of a "binder" describing it, and has the thrill of seeing "Sold" stamped in the blue-lined square which represents his lot, a space usually 50 by 100 feet of Florida soil or swamp. There are instances where these first-day sales have gone into several millions of dollars. And the prices! It takes days to get accustomed to hearing them without experiencing a shock. They will compare favorably with choice building lots in our largest cities. Inside lots from \$8,000 to \$20,000. Water-front lots from \$15,000 to \$25,000. Seashores from \$20,000 to \$75,000. And these are not in Miami. They are miles out, 10 miles out, 15 miles out, and 30 miles out.

All the way up the coast to Palm Beach these prices prevail. Away from the coast-line developments, the prices fade to half or even one-fourth of these figures, until you begin to approach the region of the Dixie Highway, and again they soar. On each side of that artery of travel for two or three miles, the prices are about the same as on the

TABLE II. CLEARING HOUSE EXCHANGES*
(Unit: \$1,000,000)

Year Ending September 30	Jacksonville, Fla.	Tampa, Fla.
1897	8.2	....
1898	10.8	....
1899	11.6	....
1900	12.7	....
1901	15.2	....
1902	19.2	....
1903	21.2	....
1904	41.0	....
1905	55.9	....
1906	65.6	....
1907	75.4	....
1908	70.7	....
1909	85.6	....
1910	117.1	....
1911	141.4	....
1912	165.4	....
1913	174.0	....
1914	162.4	....
1915	138.0	49.9
1916	160.5	51.3
1917	153.8	56.5
1918	209.1	69.2
1919	411.2	91.8
1920	605.9	123.2
1921	522.5	86.3
1922	494.3	114.7
1923	620.3	148.4
1924	765.2	178.1
1925	1180.0	360.7
1926	1674.8	492.3

* Sources: *Statistical Abstract of the United States* and *Report of the Comptroller of the Currency*.

* Published in the *Inspection Report* of that Company, September, 1925.

shore line, except that directly on the highway, business lots go to as much as \$1,000 a front foot.

The buyer's next obligation is to pay one-fourth of the purchase price in 30 days. But here is where the fun comes in. But few plan to pay it; they expect to sell their "binder" contract for a substantial profit over what they paid down. Practically all lots immediately go on resale, marked up by the new owner at a new figure. They may be listed at a dozen or more sales offices. The promoter announces "Sold out," and individual trading begins. Ordinarily they turn fast. A lot, or the binder for it, may change hands several times before the first down payment is due.

After the first payment is made by the then holder of the binder, the balance is usually carried in one-, two-, or three-year notes. He may want the lot for the long

haul, for the bigger prices expected in the winter, or may immediately list it for resale. In any event, his prices will ordinarily require a cash payment representing what he paid for the binder, the first payment balance, and his own profit. The new purchaser also assumes the original notes for the second, third, and fourth payments. This pyramiding of the cash commitment has brought an end to the speculator of very limited means. It takes quite a bit of money to handle resales. That is one reason the promoter's sales go over so quickly. Lots which have changed hands several times require as much as one-half to three-fourths of the price in cash. When the cash required so nearly approaches the price of the lot, it is less attractive to the speculators and the shoestring operators. There are sections, whole subdivisions, where the market is practically stagnant on this account and where the holders are waiting

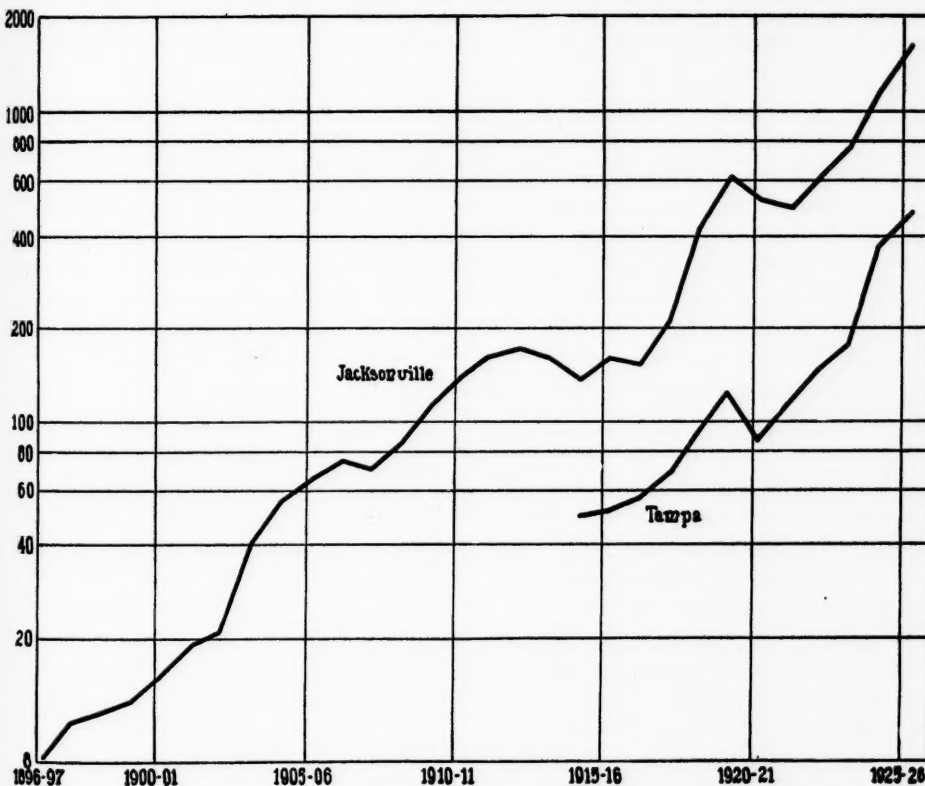


Chart 3. Clearing-house exchanges for Jacksonville and Tampa, Florida; years ending September 30, 1897-1926. (Unit: \$1,000,000.)

for the winter, for the tourists, who are expected to set all sections in motion again.⁷

In addition to the promoters and developers, there were the "binder boys"⁸ who bought for a "quick turn," "high pressure" salesmen with expert "closers," a whole army of assistants, "cappers," and "pointers"—the latter of either sex known aptly enough as "bird-dogs"—together with a sordid collection of gamblers, confidence men, and camp followers attracted by the prospects of "easy money." As Mr. Hill described the boomers:⁹

Who in Miami is in real estate? It would not be regarded there as an exaggeration to say "everybody." It is said "everything here is for sale." The butcher, the baker, the candlestick maker, and their wives, will buy a lot for you, or sell you one. Those in Miami who haven't got their best ear and eye ready to spot a real estate deal are so few they don't count. But what I shall speak of here are the hordes of men and women, mostly young, many of them very young, who have flocked there from the four corners and are engaged wholly in what is practically a curb market in real estate covering the whole of the Miami business section and operating over the whole state of Florida.

There are said to be 25,000 of them, attached more or less directly to one or more

of the 2,000 real estate offices in the city. It is against the city law to show a map or make a sale in the street or on the sidewalk. This is a recent and quite necessary traffic ordinance which moved the curb activities behind doors. Besides all ordinary office and salesroom space, basements have been cleared, lower floors redivided, porches enclosed, flat roofs built up, space between buildings boxed in, and arcades cut through buildings to provide double frontage. Every possible device and ingenuity have been employed, and these spaces, often poorly lighted and badly ventilated, are crowded with attaches and customers.

Many of the picturesque features of the boom were old enough after all, though they varied in details. A comparison of the tricks of the Florida "land developers" with those of the "boomers" of Southern California during the late 80's shows interesting similarities. The California boom is described in a very interesting little volume, *Millionaires of a Day*, published in 1890, by T. S. Van Dyke. The genesis of most of the tricks seen in 1924-1925 in Florida can be traced here: paper town sites sold from maps, dishonest auctions, excursions and barbecues, persons standing in line all night and paying \$50 or even \$100 for places in line

⁷ The picturesque phases of the Florida boom were also described in the *Saturday Evening Post* by Kenneth Roberts during the winter of 1925 and 1926 (issues of December 5, 1925; January 2, 9, 23; February 13 and 20, 1926). These articles were subsequently gathered into a volume, *Florida*. Mr. Roberts treats many phases of the boom with insight; but, on the other hand, he appears to have accepted certain of the projects at their then news value. (See, for example, his Chapters X and XI, discussions of Boca Raton, Hollywood, the Florida Club, Davis Island, and Davis Shores.) But he caught the spirit of the times, and his is an interesting and graphic (even if, in spots, uncritical) contemporary discussion of the late phases of the boom. The *Saturday Evening Post* presented certain Florida stories by Thomas McMorrow, who also caught the boom "atmosphere." These were entitled "Paradise on Chootchee, Fla.," (January 23, 1926); "To Let on Flagler Street" (February 6, 1926); "Land of Promise" (March 6, 1926);

"Where Every Prospect Pleases" (April 10, 1926); "Florida Fish" (August 21, 1926); and "Bought for a Turn" (September 18, 1926).

⁸ Although the "binder boys" were usually sneered at by the promoters, most of the latter maintained "resale" departments, which undertook to market lots "bought for a turn." The story of the "trimming of the binder boys" is told by Mr. Roberts, *Florida*, pp. 257-264. The use of the binders arose in part because of the great delays in securing and recording abstracts. The office forces of the Florida counties were literally swamped when the boom was at its height, and the delay entailed in completing a transfer of title was so great that trading in "binders" followed. Observers generally agree that this unregulated trading marked the wildest phase of the boom.

⁹ Walter C. Hill, *op. cit.*, pp. 31-32. See also verses entitled "The Florida Bull Market," in *Lisman's*, November 23, 1925.

in the morning, "purchases" by business men of established wealth and position, new varieties of fools arriving on every train, crowded streets, and "millionaires" rushing around in new buggies in Los Angeles. Indeed, the course of the California boom, in its general development as there described, seems to have been followed with striking similarity in Florida nearly 40 years later.

Some of the tricks of the land boomer which reappeared both in California in the 80's and in Florida had been observed even earlier by Harriet Martineau in her *Society in America*:¹⁰

I never saw a busier place than Chicago at the time of our arrival [1835]. The streets were crowded with land speculators, hurrying from one sale to another. A negro, dressed up in scarlet, bearing a scarlet flag, and riding a white horse with housings of scarlet, announced the times of sale. At every street corner where he stopped, the crowd flocked round him; and it seemed as if some prevalent mania infected the whole people. The rage for speculation might fairly be so regarded. As the gentlemen of our party walked the streets, storekeepers hailed them from their doors, with offers of farms, and all manner of land lots, advising them to speculate before the price of land rose higher . . . Wild land on the banks of a canal, not yet even marked out, was selling at Chicago for more than rich land, well improved, in the finest part of the valley of the Mohawk, on the banks of a canal which is already the medium of an almost inestimable amount of traffic. If sharpers and gamblers were to be the sufferers by the impending crash at Chicago, no one would feel much concerned: but they, unfortunately, are the people who encourage the delusion, in order to profit by it. Many high-spirited, but inexperienced, young men, many a simple settler, will be ruined for the advantage of the knaves.

Others, besides lawyers and speculators by

trade, make a fortune in such extraordinary times. A poor man at Chicago had a pre-emption right to some land, for which he paid in the morning one hundred and fifty dollars. In the afternoon, he sold it to a friend of mine for five thousand dollars. A poor Frenchman, married to a squaw, had a suit pending, when I was there, which he was likely to gain, for the right of purchasing some land by the lake for one hundred dollars, which would immediately become worth one million dollars.

In two respects—the use of free motor transportation back and forth over the state and the extravagant use of advertising—the Florida boom eclipsed its predecessors. Florida was a publicity man's Paradise: newspaper advertising, magazine advertising, billboard advertising in Florida and outside, even as far as Boston and Chicago, carried the inspired messages of

TABLE III. LOANS AND DEPOSITS OF NATIONAL BANKS IN FLORIDA*

Date of Call, on or about Oct. 1	Loans, etc. Unit: \$1,000,000	Deposits Unit: \$1,000,000
1896	3.623	3.912
1897	3.243	3.905
1898	3.045	5.105
1899	3.600	5.773
1900	4.463	6.435
1901	5.654	7.928
1902	6.120	7.743
1903	7.420	9.402
1904	9.943	11.713
1905	13.064	14.085
1906	18.212	19.201
1907	19.878	19.365
1908	18.421	17.063
1909	21.020	20.648
1910	27.240	25.837
1911	29.266	29.380
1912	33.779	31.670
1913	35.557	34.391
1914	36.062	34.657
1915	36.738	37.584
1916	39.747	46.505
1917	43.270	54.347
1918	45.056	59.535
1919	48.967	73.824
1920	66.749	88.380
1921	63.341	89.835
1922	64.163	103.227
1923	72.588	116.084
1924	82.202	142.770
1925	175.018	329.946

*Source: Reports of the Comptroller of the Currency.

¹⁰ Vol. I, pp. 349-353. The Chicago land boom which spread in 1836 over the state is also discussed briefly in Thomas Ford's *History of Illinois*, pp. 181-182.

sunshine, prosperity, profits, and constitutional exemption from income and inheritance taxes. Florida was at once the last frontier and the source of eternal youth, a present-day playground and a future seat of industry. Was not the dredging of Lake Worth already making a deep-sea harbor at West Palm Beach? And could not a deep-sea harbor be created at New Smyrna by dredging the Mosquito Inlet? The state was "merely doing in a few years what it would ordinarily

take decades to do . . . turning the tables on the usual development procedure . . . speeding up the future and making it the present."¹¹

Drain ditches became Venetian canals (with gondolas and gondoliers imported direct from Venice),¹² and both sides of these ditches became "water-front property." More "water-front property" was created by pumping sand into bulwarks built around mangrove swamps at Miami, Fort Lauderdale, and elsewhere; and, of course, "busi-

¹¹ C. D. Fox, *The Truth About Florida*, p. 12. This volume, dated December, 1925, is a wholly uncritical presentation of the glories of Florida and the claims of promoters. The latter must have enjoyed Chapter XIX, "Is Florida a Venture or a Certainty?" where the author characterizes and eulogizes them.

¹² Thus a cable to the *New York Times*, from

Venice, Italy, dated November 15, said: "An American resort promotion company has ordered twenty-five gondolas from the principal gondola factory here. Ten of them, equipped with all the picturesque accoutrements of the real Venice craft, have been shipped to a Florida resort, and the other fifteen will soon be completed." *New York Times*, November 16, 1925.

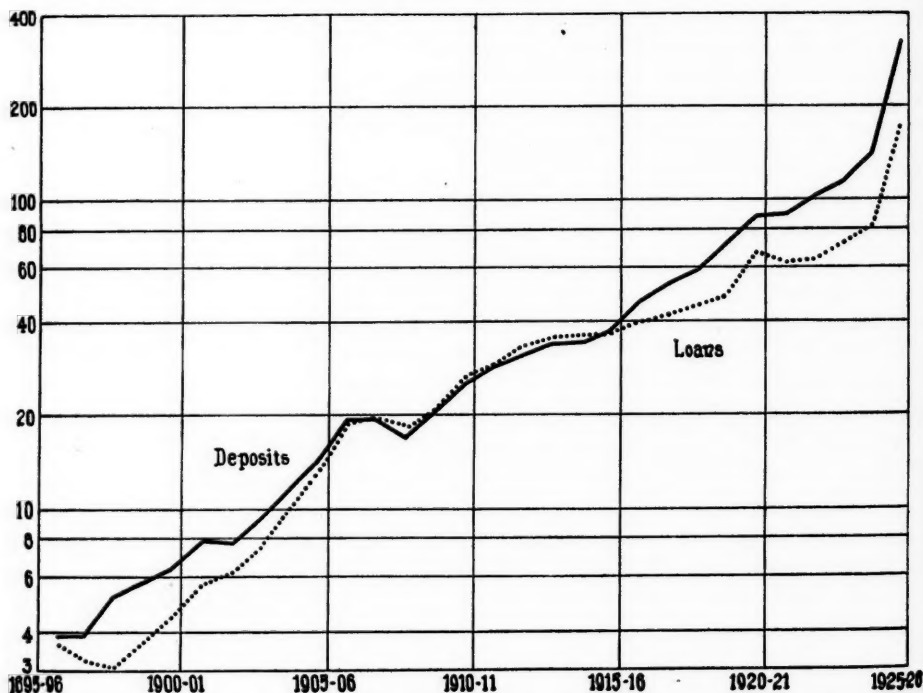


Chart 4. Loans and deposits of national banks in Florida; dates of call nearest October 1, 1896-1925. (Unit: \$1,000,000.)

ness property" was provided at high prices even in the "predevelopment" stage of these projects.

Every "city" had its slogan: Miami became the "Magic City"; Orlando, the "City Beautiful"; St. Petersburg, the "Sunshine City"; Bradentown, the "Friendly City"; Sanford, the "City Substantial." Fort Lauderdale was called the "Tropical Wonderland"; and Indrio (still an unreclaimed, windswept stretch) was proclaimed "Florida's newest and most beautiful town," with 100-foot lots selling at \$8,000; while Hollywood, located directly on the ocean, became "The Golden Gate of the South." Summer was said to "spend the winter at West Palm Beach." Great hotels were projected to lend support

to the created land "values" in new developments, and, since Florida was to be a playground, its "country club sections" abounded.¹³ At St. Petersburg, close to an ugly half-painted race track where greyhounds chased a mechanical rabbit to provide atmosphere and excitement, lots were sold in "The Kennel Club Estates." Ponce de Leon seems to have been adopted as a patron saint, and Spanish names were scattered broadcast: Rio Vista, San José, Los Gatos ("the cats"). When pure imagination ("vision" in Florida) failed, names already familiar in California were bodily taken over: Pasadena, Hollywood, Santa Monica; and nearly every successful promotion had its parasitic neighbor where "just-as-good" lots

"Thus, huge signboards proclaimed "Fifteen-story Fleetwood Hotel is making money for investors at Daytona Shores." No such hotel was ever built. At Boca Raton the building of a "Ritz-Carlton" was announced, and at San José, a "Vanderbilt." At both Lake Wales and Haines City, small towns in the center of the citrus fruit section, ten-story hotels now loom up above the surrounding country to make the sky line hideous. During the boom, housing accommodations were inadequate

everywhere in the state, and charges of \$15 a night were not uncommon in private homes. In those days (January, 1926) coffee cost 25 cents a cup (no cream!) and two eggs, 75 cents. Nearly everywhere in Florida it was necessary to stand in line for meals even at such prices, where a year later more seats were vacant than filled. An Ohio-Mississippi River steamer was brought around to Tampa for use as a hotel, and at Jacksonville a similar expedient was followed.

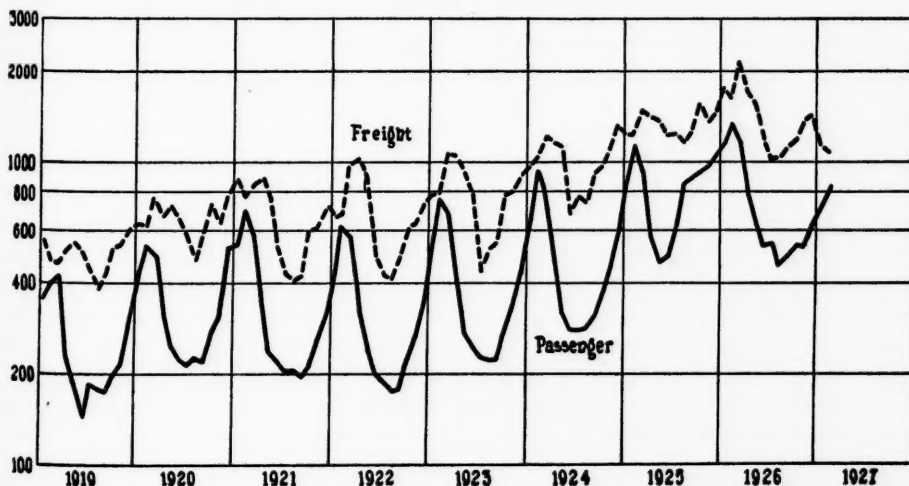


Chart 5. Passenger and freight earnings of Florida East Coast Railway; monthly, 1919-1927. (Unit: \$1,000.)

TABLE IV. PASSENGER EARNINGS OF THE FLORIDA
EAST COAST RAILWAY*
(Unit: \$1,000)

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	354	443	541	444	531	638	855	1173	705
February.....	398	536	674	616	750	937	1144	1332	840
March.....	429	493	580	577	685	799	930	1178	...
April.....	233	318	354	327	403	473	561	780	...
May.....	187	247	244	244	270	313	460	624	...
June.....	146	227	222	200	244	288	492	530	...
July.....	185	215	206	189	232	286	643	539	...
August.....	178	227	208	174	227	287	848	451	...
September.....	174	221	196	178	228	307	896	495	...
October.....	198	267	212	210	262	376	929	535	...
November.....	222	308	260	264	328	440	956	523	...
December.....	292	522	315	349	430	575	1071	616	...

*Source: *Railway Earnings Supplements of Commercial and Financial Chronicle*.

could be bought at a lower price. In addition, there was a Cosmic City, together with Cosmic Farms, a Tropical City, an Inter-Ocean City, and a Picture City, where a new "movie" colony was "destined" to flourish (using the Everglades for jungle pictures!). A well known professional baseball player sponsored "Pennant Park." In addition, there were the usual 5-acre and 10-acre farm sites ("independence" on 5 acres of pine barren or palmetto hammock, as Florida jungle is often called), rubber plantations, banana groves, and citrus fruit ranches. Toward the end of the boom, also, "industrial" possibilities were exploited: for example, a "Textile City," located west of Daytona, far from a railroad, was promoted, which should become the site of a great industrial plant making "Daytona cloth!"¹⁴

¹⁴The *Florida News*, published at Miami between September, 1925, and April, 1926, contained a wide variety of typical advertisements extolling the virtues, glories, and profit-making possibilities of Florida, many of which were accepted, however, by so-called standard magazines, including some which profess to "censor" the advertising accepted. A complete file of this publication has been deposited in the library of the Institute for Research in Land Economics and Public Utilities. The Miami and other Florida newspapers also were filled with similar advertisements and "stories."

¹⁵See, for example, the case of Mrs. Mary O'Dwyer, *New York Times*, November 17, 1925;

Moreover, as the speculation spread, or was carried, over the country, Florida became "news"; and "special stories" filled the daily papers everywhere, telling of the latest "gold rush," and featuring stories of fabulous wealth almost miraculously secured.¹⁵ Pictures of bathing beauties (professional and otherwise), of cocoanut palms on moonlight nights, and occasionally of the islands and peninsulas which had been pumped out of the sea by enterprising promoters, who had thereby reaped "miraculous" (paper) profits, filled the papers of the North. The pictures were for the most part real, though in many instances they were merely photographs of architects' drawings, and the stories sometimes, and to some extent, true. Thus, for example, there is no reason to doubt that some men did stand 40 hours in line to buy lots in Davis Islands at Tampa and that quick profits, not all of them paper profits, were made on the turnover; but it is equally true that the Davis Island project was bankrupt and unfinished when, in August, 1926, Stone and Webster organized a syndicate to undertake its completion. Likewise, it is true that during the height of the boom, the late Mr. Bryan—sometime Secretary of State of the United States—lectured each day on the glories and future of Florida to an audience which

of Mrs. Frances Cragin, *ibid.*, September 25, 1925; and of Samuel Untermeyer, *ibid.*, March 3, 1925. In the latter instance a tract sold a month previous by Mr. Untermeyer at "a little more than \$775,000 brought \$1,499,378.60 when auctioned off in plots." The tract, comprising about 32 acres, had been purchased about five years previously by Mr. Untermeyer for \$75,000, at which time, it was said, the price was considered extremely high. These and similar stories were reprinted by newspapers over the whole country, and were used by an army of promoters and lot salesmen in Florida and elsewhere in the country. Many of them appeared in the *Florida News*.

crowded the "bleachers" of a bathing pool in one of the most widely advertised "developments." Equally true is it that a year later most of the elaborate real estate offices on Flagler Street in Miami were either closed or practically empty, and that in Tampa, Jacksonville, and Daytona Beach (and for that matter, all over Florida) similar conditions obtained.¹⁸ Indeed, the writer was one of a small group present at that very same bathing pool late in November or early in December, 1926, when the height of manufactured enthusiasm (the climax of a "progress week") was being expressed by the gift of a huge loving cup to the wife of the principal promoter of the "development." It was

TABLE V. FREIGHT EARNINGS OF THE FLORIDA EAST COAST RAILWAY*
(Unit: \$1,000)

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	554	633	865	658	703	956	1239	1775	1160
February.....	473	625	769	682	800	1044	1235	1611	1092
March.....	468	767	847	972	1072	1212	1491	2138	....
April.....	506	668	888	1023	1051	1170	1400	1735	....
May.....	547	718	756	898	937	1129	1379	1545	....
June.....	507	644	523	494	779	672	1217	1187	....
July.....	444	561	425	425	442	758	1241	1013	....
August.....	390	476	406	411	513	725	1168	1030	....
September.....	438	595	420	482	548	903	1266	1105	....
October.....	514	730	398	608	765	968	1560	1192	....
November.....	537	639	602	626	799	1103	1387	1374	....
December.....	607	776	711	721	909	1314	1476	1457	....

*Source: Railway Earnings Supplements of Commercial and Financial Chronicle.

a very different and chastened Florida in late 1926 from that which Mr. Bryan had known.

The Seasonal Influence in Florida

The influence of the changing seasons necessarily plays a large part in the economic life of Florida. The state has developed primarily as a winter resort, and the state was advertised and the boom promoted upon the assumption that a great winter playground was to

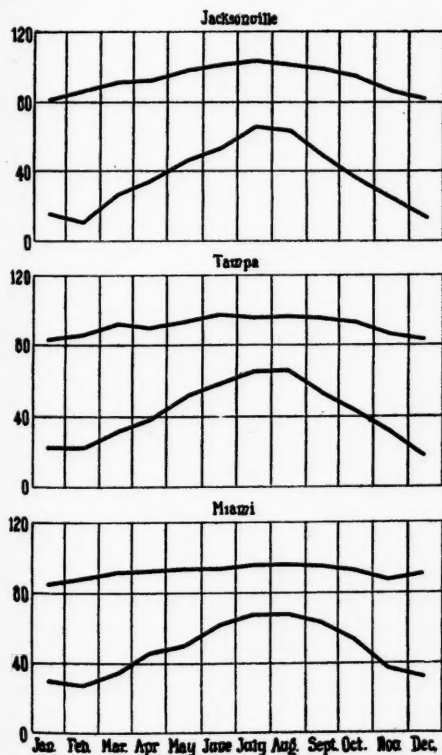


Chart 6. Highest and lowest temperatures on record in Jacksonville, Tampa, and Miami, Florida. (Unit: 1 Degree.)

¹⁸The bonus payments made for leases on desirable stores led to some of the most absurd stories of land values in the cities and towns. One plot in Miami was leased on a basis of \$70,000 a front foot, a price of \$700 a square foot on a plot 100 feet in depth; and a tiny store in Flagler Street, Miami's main thoroughfare, covering only 15 by 25 feet, was leased at \$18,000 a year. Other stores in Miami brought an average rental of \$30,000 a year, although similar locations in Forty-Second Street and Broadway, New York, could be had for \$5,000 or less (*New York Times*, November 15, 1925). Promoters could afford to pay these high lease rates in order to secure desirable sites—indeed, without such sites they could not operate at all. But the rental rates agreed upon under these circumstances were purely temporary and did not support land values. Space was at a premium in Miami, whether for business or residential purposes. Thus, one of the town's well known old hotels was remodeled, and the owner leased out the dining room. The lessee tore out the kitchen fixtures, removed tables, chairs, and serving stands, and in their place installed a score or more of desks, with a single chair for each. For each such "office," he got \$100 a month (*ibid.*).

TABLE VI. TEMPERATURES AT JACKSONVILLE, MIAMI, AND TAMPA, FLORIDA

Month.....	1	2	3	4	5	6	7	8	9	10	11	12
A. Highest on Record												
Jacksonville.....	81	86	91	92	98	101	104	101	99	95	86	82
Miami.....	85	88	92	93	94	94	96	96	95	93	88	91
Tampa.....	83	86	92	90	94	98	96	97	96	93	87	84
B. Lowest on Record												
Jacksonville.....	15	10	26	34	46	54	66	64	49	37	26	14
Miami.....	29	27	34	45	50	61	67	67	62	53	36	32
Tampa.....	23	22	32	38	52	59	65	66	54	43	32	19
C. Daily Mean Maximum												
Jacksonville.....	64	67	72	78	84	88	90	90	86	79	71	65
Miami.....	74	74	77	80	82	85	87	87	86	83	77	75
Tampa.....	69	71	76	80	86	89	89	89	88	82	76	70
D. Daily Mean Minimum												
Jacksonville.....	47	49	54	60	66	72	74	74	71	64	54	48
Miami.....	62	60	64	67	71	74	76	76	75	73	66	63
Tampa.....	52	53	58	62	67	72	73	74	72	66	58	53

*Source: *Statistical Abstract of the United States*, 1925, p. 131, and Bulletin W of the Department of Agriculture, Weather Bureau. The data are long-time averages based on daily observations at the respective points, covering periods ranging from 20 to more than 50 years.

be developed which should be the "Riviera" of North America, whatever that might mean.

The various monthly series of economic data reflecting changes of conditions in Florida show, as would be expected, a very regular seasonal swing with a peak early in the year, a deep trough during the summer, and an upswing during the autumn. The series which shows perhaps the widest swings

within the year is that for the passenger earnings of the Florida East Coast, although the curve for freight earnings naturally enough shows much the same contour (Chart 5 and Tables IV and V).

The peak of the passenger revenue has generally occurred in February and that for freight revenue in March or April, however; and the freight curve has usually begun to advance during the second half-year well in advance of the passenger curve. Extra passenger trains are put in service after November; but the real season, as marked by the opening of the fashionable hotels, begins after Christmas, or even after January 1.

The causes of this very pronounced seasonal movement lie in the climate conditions which are at once Florida's greatest asset and greatest handicap; for while the state (especially south of Daytona Beach) has an attractive winter climate, it has a summer climate which is very oppressive for many northerners. During the summer and early autumn, also, there is the ever threatening danger of a destructive West Indian hurricane, or at least of

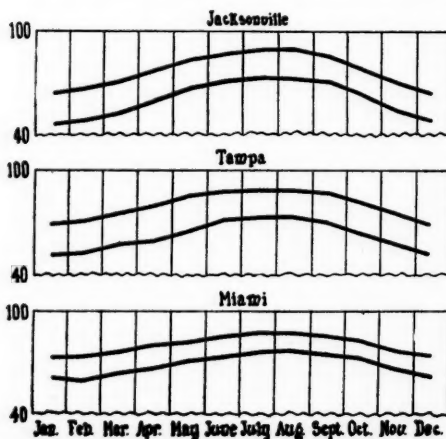


Chart 7. Daily mean maximum and minimum temperatures for Jacksonville, Tampa, and Miami, Florida. (Unit: 1 Degree.)

TABLE VII. CONDITIONS OF RAINFALL IN JACKSONVILLE, MIAMI, AND TAMPA
Total precipitation, in inches

Month.....	1	2	3	4	5	6	7	8	9	10	11	12
Jacksonville.....	3.12	3.43	3.52	2.72	4.25	5.53	6.20	6.21	8.03	5.06	2.19	2.99
Miami.....	2.73	2.13	2.61	3.33	6.48	7.13	6.17	6.42	8.72	8.96	2.84	2.00
Tampa.....	2.80	3.27	2.81	1.85	2.92	8.34	8.43	8.59	7.41	2.97	1.72	2.02

*Source: Statistical Abstract of the United States, 1925, p. 131. See footnote, Table VI.

heavy semitropical rains.¹⁷ Florida suffered from two such hurricanes during the summer and early autumn of 1926; and not only were these very severe but they were practically confined to the most thoroughly "boomed" section. The damage done by the first storm, that of late July, was mainly confined to the area close to Palm Beach and was not attended by serious property damage or loss of life; but that of September 19, on the contrary, affected the whole 60-mile stretch from Palm Beach to Miami and resulted in considerable property damage and loss of life.

¹⁷In the *Annalist* for October 1, 1926, is a brief, nontechnical discussion of the wind and flood hazard in Florida, written by Professor Alexander McAdie of Harvard University. This contains the two tables shown below, the first showing the frequency of West Indian hurricanes during the months May to December for the 10-year interval 1916-1925, and the other, the total number of such hurricanes by months, for the period of 39 years, 1887-1925. The first four months of the year may be considered as free from hurricanes; indeed, only one such has occurred in May in nearly 40 years. More than 60% of the hurricanes occur during September and October, and 78% during August, September and October. Not all of these have reached Florida, of course.

FREQUENCY OF WEST INDIAN HURRICANES, BY YEARS, 1916-1925

1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
13	2	4	4	4	5	5	5	7	3

FREQUENCY OF WEST INDIAN HURRICANES, BY MONTHS, 1887-1925

May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17	17	42	81	72	17	2

Data reflecting the seasonal changes in temperature at Jacksonville, Tampa, and Miami—cities located at strategic points on either coast and at the principal northern gateway to the state—appear in Table VI. These data are also shown on Charts 6 and 7. On the former chart are shown the highest and lowest temperatures within each month as recorded for each city during recent years; and on the latter are shown the averages for the daily high and low figures recorded during each month. For the present purpose, it is not necessary to make a detailed analysis of these data since they clearly show that temperature is a dominating factor, first, in bringing about the seasonal migration to Florida in the winter and, secondly, in bringing about the seasonal exodus. During the late spring and summer, also, occurs the rainy season, as illustrated on Chart 8, which gives the total precipitation for the three principal cities. Indeed, it is the combination of rising temperatures and increased rainfall which results in bringing the tourist season to an end

TABLE VIII. PASSENGER EARNINGS OF THE FLORIDA EAST COAST RAILWAY, ADJUSTED FOR SEASONAL VARIATION (Unit: \$1,000)

Month	1910	1920	1921	1922	1923	1924	1925	1926	1927
January.....	233	292	356	292	350	420	562	772	464
February.....	192	258	324	296	360	450	550	640	404
March.....	242	270	328	326	387	451	525	666	...
April.....	226	308	344	317	391	458	545	757	...
May.....	267	353	348	348	386	447	656	891	...
June.....	232	360	352	318	387	457	780	841	...
July.....	314	364	349	320	393	485	1090	914	...
August.....	307	391	359	300	392	495	1463	778	...
September.....	306	388	344	312	400	539	1572	868	...
October.....	296	398	316	313	391	561	1387	799	...
November.....	274	380	321	326	405	543	1180	648	...
December.....	278	497	300	332	416	548	1020	587	...

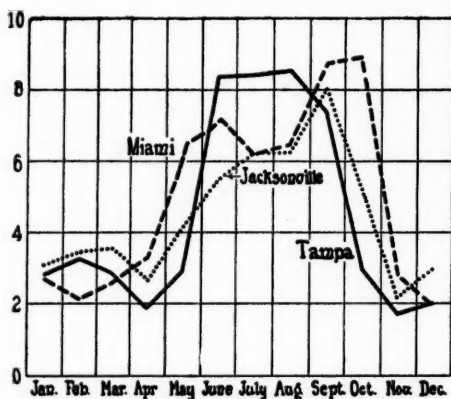


Chart 8. Total precipitation in Jacksonville, Tampa, and Miami, Florida. (Unit: 1 Inch.)

during April.¹⁸ The passenger earnings of the Florida East Coast Railroad, which present the only very clear picture of the tourist movement which is available, fall sharply during that month and do not expand substantially until November, when more moderate temperatures obtain and the rainy season is over (Chart 5). By November, also, the mosquitoes have mostly disappeared.

¹⁸It will be noted, in this connection, not only that an inverse correlation exists between the two series (as, indeed, is to be expected), but that the rainy season is of rather shorter duration in Tampa than in Miami.

¹⁹The adjustment was made by dividing the actual items as shown on Chart 5 and Tables IV

TABLE IX. FREIGHT EARNINGS OF THE FLORIDA EAST COAST RAILWAY, ADJUSTED FOR SEASONAL VARIATION. (Unit: \$1,000)

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	481	550	752	573	689	832	1078	1543	1009
February.....	411	543	569	593	695	909	1072	1401	950
March.....	342	500	618	710	784	885	1090	1560	.....
April.....	381	503	668	770	791	880	1051	1305	.....
May.....	467	614	646	767	801	965	1179	1321	.....
June.....	634	805	654	617	973	840	1510	1484	.....
July.....	653	825	625	625	650	1114	1829	1490	.....
August.....	610	744	634	642	802	1132	1820	1600	.....
September.....	593	804	597	650	741	1220	1711	1493	.....
October.....	552	785	644	654	823	1040	1077	1283	.....
November.....	572	680	641	667	850	1174	1476	1462	.....
December.....	552	706	646	656	825	1192	1343	1345	.....

The Statistical Record: The Boom

In order that the picture of the boom, as recorded in statistical series covering the economic activity of recent years, may be presented in clear focus, it is necessary to adjust the figures for seasonal variation. Chart 9 and Tables VIII and IX present the monthly figures for both freight and passenger earnings of the Florida East Coast Railroad (as shown on Chart 5) after such adjustment has been made.¹⁹ Both of these adjusted curves record a steady ad-

and V by the seasonal index for each month. The table of seasonal indexes follows:

Month.....	1	2	3	4	5	6	7	8	9	10	11	12
Freight.....	115	115	137	133	117	80	68	64	74	93	94	110
Passenger...	152	208	177	103	70	63	59	58	57	67	81	105

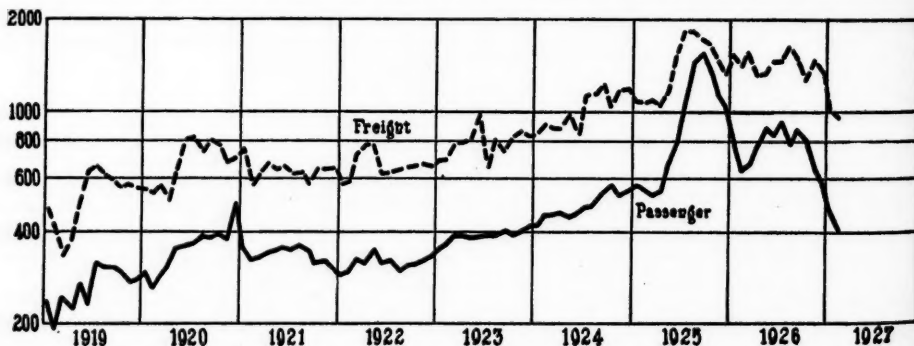


Chart 9. Passenger and freight earnings, adjusted for seasonal variation, of the Florida East Coast Railway; monthly, 1919-1927. (Unit: \$1,000.)

TABLE X. INDEXES OF BANK DEBITS FOR TAMPA, FLORIDA*
(1920-24 monthly average=100)
UNADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	66	100	88	93	107	118	182	378	212
February.....	62	92	86	91	96	120	173	314	179
March.....	73	108	97	88	120	125	200	344	197
April.....	73	104	92	85	116	124	226	309	...
May.....	76	100	95	95	123	131	221	256	...
June.....	66	89	76	79	114	123	259	248	...
July.....	66	97	71	81	99	122	258	242	...
August.....	59	85	71	76	108	113	266	222	...
September.....	66	87	70	74	92	111	206	207	...
October.....	76	91	74	82	104	128	359	223	...
November.....	76	96	79	88	106	140	334	219	...
December.....	97	93	89	107	126	172	385	237	...

ADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	59	90	79	84	96	106	164	341	191
February.....	60	89	84	88	93	117	168	305	174
March.....	62	92	83	75	103	107	171	294	168
April.....	66	94	83	77	105	112	200	278	...
May.....	67	89	84	84	109	116	191	227	...
June.....	68	92	78	81	118	127	267	250	...
July.....	70	103	75	86	105	130	274	257	...
August.....	71	102	86	92	130	130	321	268	...
September.....	84	110	89	94	117	141	375	263	...
October.....	86	103	84	93	118	145	398	253	...
November.....	83	104	86	96	115	152	363	238	...
December.....	87	83	79	96	112	154	344	212	...

*Source: Standard Trade and Securities Service—Sales and Credit Prospect.

vance, beginning in 1922, gradually gaining in momentum during 1923 and 1924, and culminating in the feverish uprush of the summer of 1925, when only a slight seasonal let-up occurred, followed by reaction in the latter months of the year when the usual seasonal expansion failed to materialize.²⁰ During the early summer of 1926, some recovery occurred; but subsequently the downward drift was resumed. Despite the lifeless real estate market, a very considerable road building and public improvement program (in part financed by bond issues, as indicated on pages 116-117 above) was under way during 1926. This activity undoubtedly contributed toward holding up the volume

²⁰In the case of freight revenues, the situation was complicated by the embargoes placed by the East Coast upon certain important classes of heavy freight discussed below. The gradual overcoming of the congestion contributed to the interruption of the decline in the adjusted figures for freight revenue in the first quarter of 1926.

of freight revenue, despite the dullness of building construction in general.

The revenue statistics of the Florida East Coast present the general picture of the boom as experienced along the main line of that company. For Tampa and the West Coast district, and for the territory north to Jacksonville, no comparable data are available, since the railroads serving those sections of the state belong to important systems (the Atlantic Coast Line and Seaboard Air Line) which publish only figures covering their total business. Monthly figures of bank debits are available for Tampa, however; and, since that city is the principal distributing and banking center for the West Coast resort district, this series of figures (after adjustment for seasonal variation) affords a very good picture of the course of the boom and its aftermath in that section of the state. Table X presents index numbers for Tampa bank debits both before and after adjustment for seasonal variation;

TABLES XI. INDEXES OF BANK DEBITS FOR JACKSONVILLE, FLORIDA*
(1920-24 monthly average=100)
UNADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	88	126	101	80	102	113	140	259	195
February.....	77	104	85	75	93	100	134	228	171
March.....	84	118	97	96	112	114	149	238	196
April.....	90	122	98	89	109	122	158	222	...
May.....	90	118	85	96	106	120	160	204	...
June.....	88	117	80	89	103	107	175	210	...
July.....	90	118	75	81	98	105	175	197	...
August.....	86	108	72	90	90	105	144	185	...
September.....	86	106	69	78	87	104	202	177	...
October.....	99	111	74	86	103	119	247	197	...
November.....	96	99	75	89	97	117	231	179	...
December.....	111	110	88	106	121	133	272	207	...

ADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	84	120	96	76	97	108	133	247	186
February.....	82	111	90	80	90	113	143	243	182
March.....	79	111	92	91	106	108	141	225	185
April.....	83	113	91	82	101	113	146	206	...
May.....	85	111	80	91	100	113	151	192	...
June.....	87	116	79	88	102	106	173	199	...
July.....	93	122	77	84	101	108	180	203	...
August.....	95	119	70	90	99	115	158	203	...
September.....	98	120	78	80	99	118	230	201	...
October.....	101	113	76	88	105	121	252	201	...
November.....	101	104	79	94	102	123	243	188	...
December.....	100	99	79	96	109	120	245	186	...

*Source: Standard Trade and Securities Service—Sales and Credit Prospect.

and similar figures for Jacksonville are presented in Table XI, and for Pensacola in Table XII.²¹ The story told by these curves (Chart 10) is not greatly different from that told by the curves which trace the course of the boom on the East Coast; beginning in 1922 there is an almost uninterrupted climb to the dizzy heights which marked the peak of the boom. Just as on the East Coast, no seasonal let-up appears to have occurred during the summer of 1925, and the beginning of the actual downturn came

slightly later. During 1926, however, the decline was checked during the summer, but resumed during the final quarter of the year.

The outstanding feature of the Jacksonville curve is, however, the tardiness with which the sharp upswing got under way; not until late 1924 did a sustained advance appear, comparable to that recorded by the Tampa figures in 1922 and 1923. In Pensacola, the response to the boom was even tardier; neither the unadjusted nor the adjusted indexes showed anything like a sharp advance until the midsummer of 1925; and the period of exhilaration proved very brief.

It should be noted, in conclusion,

²¹These index numbers were presented in the 1927 annual statistical number of the "Sales and Credit Prospect" of the *Standard Daily Trade Service*, p. 48, supplemented by monthly issues of the same publication.

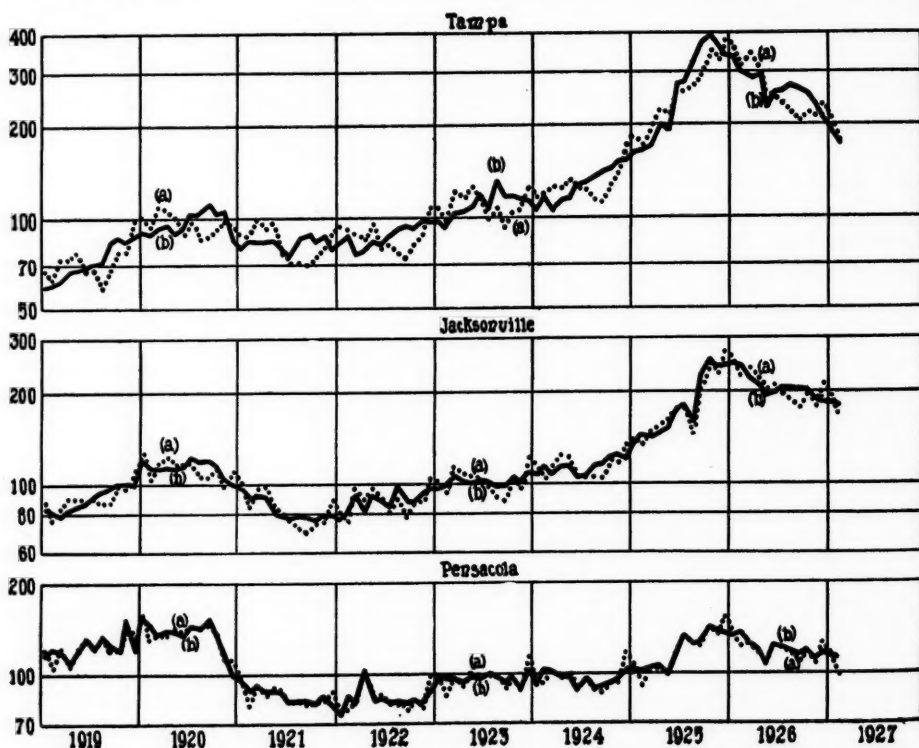


Chart 10. Indexes of bank debits for Jacksonville, Tampa, and Pensacola, Florida, monthly, 1919-1927; (a) uncorrected indexes, and (b) indexes corrected for seasonal variation. (1920-24 monthly average = 100.)

TABLE XII. INDEXES OF BANK DEBITS FOR PEN-
SACOLA, FLORIDA*
(1920-24 monthly average=100)
UNADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	121	160	99	76	99	95	107	135	115
February.....	108	132	79	77	85	93	91	122	98
March.....	121	136	93	82	97	103	104	126	117
April.....	108	137	87	101	92	97	105	118	....
May.....	121	143	91	85	101	99	101	109	....
June.....	135	140	90	86	99	90	115	125	....
July.....	121	145	82	80	99	95	131	120	....
August.....	135	144	83	82	98	89	126	117	....
September.....	121	148	80	77	90	87	122	110	....
October.....	121	136	81	82	97	93	144	118	....
November.....	148	114	83	78	87	93	136	108	....
December.....	135	112	88	100	118	118	152	130	....

ADJUSTED INDEXES

Month	1919	1920	1921	1922	1923	1924	1925	1926	1927
January.....	117	155	96	74	96	92	104	131	112
February.....	121	148	89	87	96	104	102	137	110
March.....	120	135	92	81	96	102	103	125	116
April.....	119	140	89	103	94	99	107	120	....
May.....	119	140	89	83	99	97	99	107	....
June.....	132	137	88	84	97	88	113	123	....
July.....	122	146	83	81	100	96	132	121	....
August.....	135	144	83	82	98	89	126	117	....
September.....	126	154	83	80	94	91	127	115	....
October.....	121	136	81	82	97	93	144	118	....
November.....	151	116	85	80	89	95	139	110	....
December.....	120	99	78	89	104	104	135	115	....

*Source: Standard Trade and Securities Service—Sales and Credit Prospect.

moreover, that except at Tampa, where Stone and Webster had taken over the Davis Islands project, and at Venice on the West Coast, where the Brotherhood of Locomotive Engineers was financing the building of a projected city, land development operations practically came to a standstill during the summer of 1926. In November unfinished buildings—including in some cases great hotel buildings—on which work had ceased were to be found in nearly every "development"; and only in Jacksonville, where, as indicated above, the stimulus of the boom was felt very late, was construction even moderately active. The September hurricane resulted in a certain amount of rebuilding and emergency work in the territory between Palm Beach and Miami; but this was soon completed and the depression became general over the state.

HYDRO-ELECTRIC POWER POLICIES IN ONTARIO AND QUEBEC¹

By HARALD S. PATTON

I

CANADA occupies an outstanding position in the field of hydro-electric power development. On the basis of aggregate turbine installation, it is second only to the United States among the countries of the world. In relation to population, however, Canada, with approximately 475 installed horsepower per 1,000 inhabitants, has four and a half times as great a hydro-electric density as the United States. In this respect it is surpassed only by Norway, with its immense electro-chemical industries and its scanty population of two million. If comparison be made on the basis of water power utilized in central electric stations, Canada, with one turbine horsepower for approximately every three of its inhabitants, takes first rank internationally, the corresponding ratio in the United States being one turbine horsepower for every thirteen persons. Canadians, in fact, are the most lavish users of electricity of any people in the world. The generation in central electric stations (steam and hydro-electric) was equivalent in 1924 to approximately

1,000 kilowatt hours per person—double the per capita consumption in the United States. The capital invested in the electric light and power industry in Canada represents, indeed, more than one-sixth of the capital employed in all manufacturing industries.

In view of the facts that Canada is much less highly industrialized than the United States and that its railways have not been electrified as in Switzerland and northern Italy, the extent of its utilization of electric power may appear somewhat surprising. The basic explanation, as with many economic phenomena, is to be found in terms of geography and economic history.

In Canada, as in the United States, the bulk of the population lies in the older, settled, eastern half of the country. But, whereas high-grade coal deposits extend more or less continuously from the northeast corner of Pennsylvania southward to Alabama and westward into Illinois, the Canadian provinces of Ontario and Quebec, which contain together nearly 60% of the Dominion's population, do not produce a single ton of coal. Canada, indeed, has abundant coal deposits, estimated

¹EDITORIAL NOTE. Professor Patton's article will be published in two parts, the second appearing in the August, 1927, issue. The article as a whole describes the development of hydro-electric power under a policy of public ownership in Ontario and of private ownership in Quebec, and compares the results achieved by these opposite policies. The part appearing in this issue gives the general background of power development in the two provinces and traces the evolution of the public

ownership policy in Ontario. The part appearing in the August, 1927, issue will deal with the history of Quebec's policy and the comparative results in both provinces. In the editor's opinion, Professor Patton has made an able and dispassionate study of a situation which has been much discussed since the Murray-Flood report on the Ontario Hydro-Electric Commission for the National Electric Light Association in 1922 and the Smithsonian Institute report on the same subject by Mr. S. S. Wyer in 1925.

as equivalent to about one-sixth of the world's known reserves. These are located for the most part, however, either in the extreme east (Nova Scotia) or in the far west (Alberta, Rocky Mountains, and Vancouver Island). Neither region, under existing conditions, is within economic coal marketing range of the industrial center—except as Cape Breton coal may move up the St. Lawrence to Montreal during open navigation. Canada, with approximately one-quarter of the estimated coal reserves of the Western Hemisphere, thus presents the anomaly of importing practically one-half of its annual coal consumption.

While Nature has thus been somewhat discriminating in the distribution of coal deposits throughout the Dominion, there are compensations. The "acute fuel area" of Canada is exceptionally favored as regards natural water powers, both as to volume and location. The Great Lakes-St. Lawrence system not merely affords an inland waterway to the heart of the continent, but it also supplies a series of concentrated water powers of relatively uniform flow (as the Niagara and the Upper St. Lawrence Rapids) in the very region where population is densest and industrial development most advanced.

The hydrographic advantages of Ontario and Quebec are not limited, however, to their southern, international frontage, but are also profusely distributed throughout their vast hin-

terlands, extending to Hudson Bay and Hudson Straits.³ The coalless provinces of Ontario and Quebec are compensated, indeed, by possessing between them 60% of the estimated available water powers of the Dominion.³

The stimulus for hydro-electric development in Ontario and Quebec, which together contain—in almost equal proportions—four-fifths of the total turbine installation of the Dominion, has been twofold. On the one hand, water powers adjacent to the area economically focused on Toronto and Montreal have been developed primarily as an alternative to dependence on imports of American coal for manufacturing and public utility purposes. The extent of this process of substitution is shown by the fact that, while the coal consumption of the Dominion averaged over 4 tons per capita in the years immediately preceding the war, it amounted in 1924 to barely more than 3 tons per person,⁴ despite an expansion of approximately 50% in the physical volume of manufacturing during the decade. On the other hand, hydro-electric development has been directly related to the extraordinary expansion of the pulp and paper and metal mining industries of New Ontario and Quebec.

Between 1900 and the World War period, Canada was primarily occupied in extending its agricultural frontier to the northwesterly limits of the prairies. The postwar period has been marked rather by the northern extension of the

³The geological history and characteristics of the glaciated Laurentian Plateau are especially favorable to hydro-electric development.

⁴In the United States, on the other hand, the industrial regions of New England and the Middle Atlantic and North Central states, which use 65% of all the power employed in manufacturing in the country, possess only 10% of the water powers;

the Mountain and Pacific regions, on the other hand, which use only 8% of the power employed in manufacturing in the country, contain 72% of the water powers. See W. H. Voskuil, "Water Power Situation in the United States," *Journal of Land & Public Utility Economics*, Vol. I, January, 1925.

⁵ *Canada Year-Book*, 1925, p. 380.

economic frontier of the Laurentian provinces through the concurrent expansion of the forest, mining, and power industries.

The abundance and accessibility of water power has favored not only the large-scale recovery of this forest and mineral wealth, but also the processing of the raw materials close to the point of extraction. Approximately 100 horsepower is required to convert spruce pulpwood into one ton of newsprint, so that cheap power is the primary consideration in the localization of paper mills. In some of the mills, off-peak power is economically used for the generation of steam in electric boilers for drying purposes. Fully one-fifth of all the developed water power in Canada, in fact, is utilized in the manufacture of pulp and paper. The 122 mills in operation in 1925 between Nova Scotia and the Pacific Coast employed 732,000 horsepower, either by direct turbine installation in the industry or by purchase from central electric stations.⁵ In the eastern townships of Quebec the rising cellulose and rayon industries represent the application of St. Francis River power in a much more elaborate fabrication of pulp.⁶

Northern water power development has been closely associated also with

the rapidly expanding metal mining and metallurgical industries of New Ontario and New Quebec. The Laurentian mineral deposits occur in quartz formations, and modern large-scale lode mining, with its drilling, shaft-sinking, milling, and concentration operations, is increasingly dependent on power. Other things being equal, the cheaper the available power, the lower the grade of ore which can be economically worked, and the longer a mine can continue to be operated with some advantage.⁷

Cheap hydro-electric power has likewise brought about the extensive establishment in the mining districts themselves of reduction and refining works, utilizing electro-chemical processes and electric furnaces. Of the million and a quarter fine ounces of gold produced in 1925 in the Temiskaming District of New Ontario (which now ranks second only to the South African Rand as a gold producing field), more than 90% was recovered by the cyanide process, electric power being applied in the preliminary milling of the ore and in the subsequent refining of the precipitate.⁸ Fifty percent of Ontario's silver production in 1924 was treated in the reduction works in the Cobalt camp, three-quarters of the remainder being

⁵ *Canada Year-Book*, 1925, p. 389.

⁶ Although resting fundamentally on the supply of a commodity for which the demand appears to be insatiable, the accelerated expansion of the Canadian pulp, paper, and power industries has been influenced considerably by the policy of provincial governments in leasing instead of alienating Crown timber lands and in requiring as a condition of lease that timber cut thereon shall not be exported in unmanufactured form from the province concerned. Recent pulpwood concessions by the province of Ontario, for example, have required the licensee to erect a paper as well as a pulp mill within the province. In the Quebec legislature it was recently announced (January, 1927) that in the interests of forest conservation

and of investors, the policy of the government would be not to favor the establishment of additional paper mills until assured of the existence of abundant pulpwood reserves for mills already in existence or authorized.

⁷ In northwestern Quebec, electricity is being applied in ore prospecting by the Nathorst and Schlumberger methods with considerable success, it is reported.

⁸ The building of a branch railway into the Rouyn gold and copper-zinc camp in northwestern Quebec is being accompanied by the construction of the Noranda smelter at Rouyn, to which the Northern Canada Power Company is bringing power from Des Quinze Falls on the Upper Ottawa.

recovered by smelters in southern Ontario using Niagara power.*

The forwardness of hydro-electric development in Ontario and Quebec has thus been conditioned, on the one hand, by the absence of coal deposits and, on the other hand, by the abundance of timber stands and metalliferous deposits, in conjunction with natural reservoirs and waterheads. Accordingly it represents utilization, in the one case, for general public utility purposes and, in the other, for large-scale extraction and processing in the forest and mineral industries. In the former, a great number of relatively small individual consumers of power and light are affected; in the latter, a relatively small number of concentrated, large-scale consumers are concerned. Power production and distribution, therefore, are distinctly more "affected with the public interest" in the first case than in the second, where water power concessions have been granted on terms designedly favorable to the expansion of the pulp and paper and mining industries. With respect to the latter type of hydro-electric development, the policies of the Ontario and Quebec governments have been essentially similar, as will be seen from the later comparison of the two policies. With regard to the utilization of water powers for public utility purposes, however, Ontario has evolved a far-reaching system of cooperative public ownership, while Quebec has pursued a policy similar to that of most American states, whereby both water power concessions and service franchises are granted to

private corporations subject to public regulation. The experience of the two neighboring provinces affords an instructive comparison.

II

Status of Ontario's Water Powers

From the jurisdictional standpoint, the water powers available to Ontario fall within three classes. First are those lying wholly within the borders of the province; second, those occurring in interprovincial boundary streams; and third, those located in international boundary waters. Because of the formation and great territorial extent of the province—over 400,000 square miles—water powers of the first class are very numerous. They occur, for the most part, however, in "pre-Cambrian" Ontario, in streams draining into the Upper Great Lakes, Hudson Bay, and the Ottawa, and they have been harnessed chiefly in connection with the pulp and paper and mining industries. Over these water powers the province exercises complete administrative control, subject only to federal jurisdiction over the matter of navigation, which, in so far as Ontario's intraprovincial rivers are concerned, is of very limited applicability. Water powers under the second class are largely confined to those situated in the Ottawa River between Lake Temiskaming and Lake of Two Mountains. Here large-scale hydro-electric development is dependent not only on the preservation of navigation interests as determined by the

**Canada Year-Book*, 1925, pp. 362, 366. Laurentian water power is, in fact, attracting foreign concentrates for electrical reduction at the source of power. Thus the Aluminum Company of America for some years has shipped aluminum oxide (alumina) from its great bauxite plant at East St. Louis to Shawinigan Falls on the St.

Maurice River for electrolytic treatment, and has just completed the construction of a large-scale reduction plant at the new-born town of Arvida in the forest depths of the Upper Saguenay. Approximately one horsepower per day is required for the electric recovery of a pound of aluminum from alumina.

federal Department of Public Works, but also on joint action by the two provinces which share the ownership of the river bed and banks, and hence of the water powers contained within them.¹⁰

The water powers of the third class, however, are of chief economic importance to Ontario, by virtue both of their concentrated magnitude and of their location in respect to the distribution of the population and industry of the province. The development of these, however, on anything more than a local scale necessarily involves negotiation and agreement between the governments of Canada and the United States as to the diversion and beneficial distribution of such waters, without prejudice to the paramount interests of navigation in this great inland waterway system. To deal with such questions the International Joint Commission was created as a body of reference and investigation under the Treaty of 1909. By a further international agreement in the following year, the amount of water which might be diverted from Lake Erie or the Niagara River for purposes of power development was mutually limited with a view to preserving the level of Lake Erie in the interests of navigation. The disposal of the 36,000 cubic feet per second diversion thus authorized on the Canadian side¹¹ has rested entirely with the province of Ontario, except in so far as the export of electrical energy to the United States is regulated under the

federal Electricity and Fluid Exportation Act.¹² Development of the admirably located water powers of the Upper St. Lawrence awaits the attainment of agreement between Ottawa and Washington as to the basis of the joint undertaking of the St. Lawrence Ship Channel project, to which power generation will be incidental.¹³ Whenever this work is completed, the disposal of Canada's share of this international power will doubtless be controlled by Ontario, whose government has been urging federal approval of a plan of immediate unilateral development at Long Sault by its Hydro-Electric Commission without prejudice to navigation interests.

Genesis of the Ontario Hydro-Electric Power Commission

The strategic character of Niagara has fundamentally determined Ontario's hydro-electric power policy. With all the Great Lakes except one as its storage system, and with a drop of 320 feet from the head of the cataract to the level of Lake Ontario, it is the greatest concentrated water power in North America. Its location within 90 miles transmission range of Toronto and 235 miles of Windsor on the Detroit River makes it ideally accessible to the most populous and highly industrialized area of a completely coalless province. In view of the monopoly characteristics of such a commanding natural resource, it is not

¹⁰ See below, page 140.

¹¹ The diversion authorized on the New York side was 20,000 second-feet, the difference representing compensation to Canada for diversion of Lake Michigan water by the Chicago Sanitary Commission.

¹² Energy to the extent of 1,302 million kilowatt hours was exported to the United States in 1924,

of which 62% was generated at Niagara and 33% at Cedar Rapids on the St. Lawrence.

¹³ Two joint engineering boards have made elaborate reports upon the project. The Wooten-Bowden report was presented in 1920, while the McLachlan-Jadwin report was submitted to the respective governments in November, 1926. See below, page 141.

surprising that public opinion in the tributary municipalities should have been distrustful of its development in private hands, especially in the formative days of public utility regulation.

In 1885, the province of Ontario, following the example of the state of New York and actuated by consideration for the preservation of the scenic amenities of Niagara Falls rather than by any policy of imminent hydro-electric development, had enacted legislation for the acquisition of land adjacent to the Falls and Rapids on the Canadian side and for the establishment of the Queen Victoria Niagara Falls Park Commission. This body was given jurisdiction over the exploitation of water power, subject to the approval of the provincial government. However, extensive hydro-electric development was not actually undertaken on the Canadian side until the turn of the century.¹⁴ This development was initiated by two American controlled companies. One of these, the Ontario Power Company, had obtained a Dominion charter as far back as 1887, but not until 1900 did it secure a 50-year franchise from the Niagara Falls Park Commissioners for the diversion of water to develop 200,000 horsepower. The other concessionaire, the Canadian Niagara Power Company, was a subsidiary of the Niagara Falls Power Company of New York, and the greater portion of the energy generated in its Canadian power house was distributed on the American side.

The initiative in the generation of

Niagara power for transmission within the province was undertaken by directors of the Toronto Street Railway and the Toronto Electric Light Company, who obtained from the Park Commissioners in 1903 a franchise for 125,000 h.p. to be developed by the Toronto and Niagara Power Company (later known as the Electrical Development Company).¹⁵ In 1905, a second franchise was granted by the province to the latter company for developing an additional 125,000 h.p. This grant was accompanied by the provision that one-half of such power should be kept available for Ontario municipalities, to be sold at prices fixed by the government. Here we find the first evidence of a provincial power policy. An enabling act of the same year¹⁶ permitted interested municipalities to undertake the cooperative distribution of the Niagara power thus preempted, following a favorable report by a jointly organized commission of investigation. The city of Toronto and six other municipalities, under this legislation, organized the Municipal Electric Commission, which undertook an extended investigation of the problem of making Niagara power available on the most advantageous terms for the future as well as for the immediate needs of Ontario municipalities.

The investigation was conducted at a time when popular distrust of public utility and railway corporations was much inflamed in Canada.¹⁷ In Toronto particularly, a sentiment of marked hostility arose towards the Electrical Development Company, which was dominated by William Mackenzie (the aggressive president of the Canadian Northern Railway) and which had shown a somewhat arrogant attitude towards the city of Toronto in the negotiation of a street lighting con-

¹⁴ Except for 2,100 h.p. generated by the Niagara Falls Park and River Railway.

¹⁵ James Mavor, *Niagara in Politics*, pp. 27-33.

¹⁶ Statutes of Ontario, 3 Edw. VII, c. 25.

¹⁷ In 1903, federal legislation was passed creating the Board of Railway Commissioners for Canada.

tract. The public ownership sentiment voiced by an influential section of the Ontario press was known to be more or less shared by the Municipal Electric Commissioners. In presenting their report in 1906, they recommended that instead of making a contract with the Electrical Development Company for the purchase of its surplus power, the municipalities, acting jointly, should themselves obtain a power concession from the Niagara Falls Park Commission and construct their own generating and transmission as well as local distributing systems.

A change in the provincial administration at this time (1905) proved favorable to the advocates of a publicly owned hydro system. One of the first acts of the new Conservative government was to appoint a provincial investigative Power Commission, under the chairmanship of Mr. Adam Beck, of London, Ontario, who was also a member both of the Cabinet and of the Municipal Electric Commission. The findings, as well as the dominating personnel of the provincial and municipal commissions, were virtually identical. The Hydro Act, passed by the Ontario legislature in May, 1906, provided only conditionally, however, for public ownership of generating facilities. The permanent Hydro-Electric Power Commission created by this measure was to consist of three members appointed by the government, at least one of whom must be a member of the Cabinet. It was empowered not merely to fix the rates for electrical energy which might be charged by generating and distributing companies, but also, in the event of noncompliance by the latter, to expropriate, with the consent of the government, existing generating and transmission systems and to supply power directly to municipalities

in which the contract had been approved by a by-law. Capital expenditures by the commission were to be financed by provincial loans, repayment of which, with interest at 4%, should be provided for in the contract price paid by the cooperating municipalities. The act thus gave the commission operating as well as regulatory powers, and made it possible for it to fix rates with a view to effecting expropriation, subject, however, to the approval of the government.

Shortly after the creation of the provincial Hydro-Electric Power Commission under the chairmanship of Mr. (afterwards Sir) Adam Beck, Niagara Falls power first reached Toronto over the transmission lines of the Electrical Development Company, supplying the Toronto Street Railway and the Toronto Electric Light Company. In the meantime, by-laws under the Ontario Power Commission Act were adopted simultaneously by the taxpayers of Toronto and some 30 other municipalities, authorizing their municipal councils to enter into contracts with the commission for the supply of electric power. The commission thereupon contracted with the Ontario Power Company (which had hitherto not distributed beyond the Niagara frontier) for the supply of power required by the municipalities at \$10.40 per h.p. at Niagara Falls. The terms presented by the commission to the Electrical Development Company would have limited its own market to Toronto and were such as seriously to prejudice its investment and future financing.¹⁸ While expropriation was not resorted to, the commission was permitted by the government to enter as an active competitor of the company. This was done by

¹⁸ Mavor, *op. cit.*, pp. 88-92.

making treasury advances for the construction of the commission's own transmission line to Toronto, paralleling that of the company. At the same time, the citizens of Toronto carried a by-law for the financing of a municipal lighting and distributing system which should sell "provincial hydro" power in competition with the Toronto Electric Light Company. Public ownership was now definitely on the aggressive with none too scrupulous concern for vested interests or franchise rights.¹⁹ By the autumn of 1910, the commission was able to deliver Niagara power over its own transmission system to ten municipalities, each having its own lighting and distributing system.

Expansion of the Ontario Hydro-Electric System

In the decade and a half since provincial "hydro" power was first turned on at Kitchener, Ontario, the Hydro-Electric Commission has become the greatest single distributor of hydro-electric power in the world. Its disposable supply is now slightly in excess of 1,000,000 horsepower. Its eight co-ordinated "systems" furnish power to 269 "hydro" municipalities and 89 rural power districts, each with its local distributing system. Of the 4,289,000 kilowatt hours of electrical energy generated by central stations in Ontario in 1924,²⁰ over 70% was furnished by the provincial commission.

Up to 1916, the commission merely

transmitted to the participating municipalities Niagara Falls power purchased from the Ontario Power Company, and later from the Canadian Niagara Power Company as well. The increasing demand for power, stimulated as it was by "sale at cost," by municipal emulation, and by the sudden expansion of the war industries, led the commission in 1916 to acquire control of the entire output of the Ontario Power Company's plant through purchase of all its outstanding stock. At the same time, the commission took steps to generate power on its own account. The Queenston-Chippawa development, begun in 1917, involved the construction of a 12-mile power canal from the entrance of the Chippawa Creek (or Welland River) into the Niagara just above the Falls, to Queenston Heights (the original site of Niagara Falls), where a head of 305 feet is obtained—nearly double that at the cataract itself.²¹ Changes in engineering plans and wartime labor conditions caused the original cost estimates to be greatly exceeded.²² While the capitalization has thus been high, the foresight involved in its construction has been justified by subsequent power demands. The first of the nine 55,000 h.p. turbine units designed to utilize this diversion was put into operation at the end of 1921. With the installation of the ninth unit at the close of 1925, the half-million horsepower capacity of the Queenston-Chippawa development is now being fully utilized. In 1922, the

¹⁹ The legality of some of the commission's methods and the constitutionality of certain "hydro" legislation is vigorously challenged by Professor Mavor, whose work *Niagara in Politics* contains much special pleading. See chapters iii-ix.

²⁰ Equivalent to 1,383 kilowatt hours per person. The per capita consumption in the United States during 1924 was 517 kilowatt hours.

²¹ For the same diversion of water, the Queenston plant generates 29.4 h.p. for every 14.6 h.p. generated at the Falls themselves.

²² The original plan contemplated an expenditure of \$10,000,000 to \$15,000,000. By the end of 1925, over \$71,000,000 had been invested in the canal and generating plant.

commission acquired the generating and transmission system of the Electrical Development Company as part of the general public purchase of the Mackenzie public utility interests. Thus, with the exception of the plant of the Canadian Niagara Power Company whose energy is largely marketed in New York State,²³ the commission has become the owner of all the central generating equipment on the Canadian side of the river.

Although the cooperative supply and distribution of Niagara power to the industrial municipalities of the southern Ontario peninsula between Toronto and Windsor was the original objective of the provincial "hydro" movement, the policy of the commission has been to make cheap hydro power as widely available as possible throughout the province. By the development of the lesser interior water powers and by purchase of private systems, it has extended its hydro-electric service to the territory north and east of the Niagara power zone, through seven minor systems: the Georgian Bay, Muskoka, Nipissing, Central Ontario and Trent, Rideau, Ottawa, and St. Lawrence. In addition, the Thunder Bay System in New Ontario makes Nipigon River power available to the Port Arthur district. Although these smaller systems are of manifest advantage to the districts concerned, their combined capacity at present is only one-sixth that of the Niagara System. Inasmuch, however, as Ontario's diversion of Niagara water is now close to the limit of 36,000 second-feet allowed her under the existing Boundary Waters Treaty, future provincial hydro-electric development lies chiefly in eastern Ontario,

through utilization of the resources of the Ottawa and St. Lawrence Rivers.

As previously noted, development of the former involves negotiation with the Dominion and Quebec governments, while exploitation of the latter is subject to international agreement. The application of the Georgian Bay Canal Company for renewal of its unused charter with power rights on the Ottawa River has just been refused by the federal parliament owing largely to the opposition of Ontario and Quebec. A conference is to be held shortly between the federal government and the two provinces to discuss the disposition of the important Carillon power site on the Lower Ottawa in which the Shawinigan Water and Power Company in Quebec and the Ontario Hydro-Electric Power Commission are mutually interested. In order further to anticipate the power requirements of this region, the Ontario Commission has recently entered into a 30-year contract with the Gatineau Power Company (subsidiary of the Canadian International Paper Company) to purchase, beginning with 1928, surplus power rising to 70% of the energy being developed at the company's three plants on the Gatineau River, which is the principal tributary of the Ottawa on the Quebec side. The commission will thus become distributor in eastern Ontario of over 250,000 h.p. derived from its neighboring province.

The power now being distributed by the commission's St. Lawrence System is likewise purchased from a private corporation, the Cedar Rapids Power and Manufacturing Company, a subsidiary of Montreal "Power." The most important water powers in the St. Lawrence, however, occur in the 92-foot descent through the Galops and Long Sault Rapids in the international

²³ The commission purchases 20,000 h.p. under contract from this company.

section of the river. Although the Canadian and American sections of the second Joint Engineering Board (reporting in November, 1926) failed to reach technical agreement on the relative merits of a single or double stage development, both sections concurred in estimating an available development of over 2,600,000 h.p., consistent with the construction of a 25-foot ship channel. Whatever engineering plan may be finally agreed upon, it can be assumed that the distribution of the Canadian share of the power so produced will be in the hands of the Ontario Hydro-Electric Commission. When this is accomplished, the commission will have in operation a continuous high-voltage transmission system from Cornwall on the St. Lawrence west to Windsor and north to Ottawa, with Toronto as the interlocking point of Niagara and St. Lawrence power.

Ontario Hydro-Electric Finance

The extensive construction undertakings and the acquisition of privately owned utilities by the Hydro-Electric Commission, when coupled with the distributing systems of the "hydro" municipalities, represent a capital investment of impressive proportions in relation to the population concerned. For the year ending October 31, 1925, the capital invested in the commission's various power systems and radial railways aggregated \$198,998,979; that of the "hydro" municipalities totaled \$77,721,094. The combined investment of over \$275,000,000 is equivalent to approximately \$90 per head of the entire population of the province.

The financial basis of Ontario's hydro-electric system is unique in public utility experience. Four parties are involved. First, the *commission* itself;

as the *agency* of the provincial government, which appoints it, from which it derives its powers, and to which it renders account; as the *trustee* of the associated municipalities on whose behalf it generates and transmits power and, in some cases, operates radial railways; and as the *principal* in whom title to properties is vested and by whom contracts are assumed and primary financial responsibility borne.

Second, the *municipalities*, as direct owners of their local distributing systems, and as joint sharers in the equity in the properties vested in the commission, to which they are financially accountable.

Third, the *provincial government*, as the constitutional source of the powers both of the commission and of the municipalities, as the financier and guarantor of the commission's undertakings, and as the supervisor of its acts.

Fourth, *private individuals* or *investment institutions* which have provided the actual capital, as holders of bonds (a) issued by the provincial treasury on the commission's account; (b) issued by the commission and guaranteed by the province; (c) issued by acquired public utility companies and assumed by the commission; (d) issued by "hydro" municipalities.

In this involved public ownership structure, in which no common stock appears, the assignment of the "entrepreneurial" responsibility is not altogether apparent. Where the commission has undertaken construction work of its own, such as its transmission lines and the Queenston-Chippawa and Nipigon developments, the funds have been advanced directly by the provincial treasurer from the proceeds of government bond issues. Where it has bought out privately owned power and radial

companies, such as the Ontario Power Company and Mackenzie interests,²⁴ it has issued commission debentures, guaranteed by the province, and has assumed the outstanding bonds of the companies concerned, with the province as secondary guarantor.²⁵

The real liability for meeting the commission's capital charges, however, falls upon the "hydro" municipalities. While the governing principle of the Ontario Hydro-Electric System is that power shall be supplied to municipalities "at cost," the contract rate includes, in addition to the direct cost of delivering power to the municipal transformer station, the following indirect items: (1) Interest on the commission's investment in the generating and transmission system concerned, prorated according to the municipality's relative use of such primary equipment; (2) yearly provisions for renewal and contingency reserves applicable to the same; (3) prorated share of the commission's administrative expenses; (4) annual sinking fund payment on basis of 30-year debt extinction.²⁶ Thus, while the province is the legal guarantor of the commission's capital obligations, the effective responsibility is carried by the associated municipalities, which, in turn, shift the burden to local

consumers and taxpayers (in respect to street lighting). Thus far, the province has not been called upon to discharge its guaranty to "hydro" security holders, nor has the commission technically failed to meet its interest obligations to the treasury.²⁷ Should such a contingency arise, the latter would be reimbursed through increases in the "cost of power" to the municipalities. Hence the latter may be regarded as "joint entrepreneurs" in the system; and their equities in the commission's assets are represented by the sinking fund payments standing to their credit.²⁸ When the advances of the provincial treasury are ultimately repaid, the primary equipment will be jointly owned by the "hydro" municipalities. With respect to local distributing systems, 40 municipalities at the end of 1925 showed an excess of quick assets over all liabilities (including debenture balance) and may fairly be considered as out of debt, while 31 others showed such a close approximation as to be classed as "nearly out of debt."²⁹

Rural Power Distribution

Through its various systems, the Ontario Hydro-Electric Power Commission makes provincial "hydro"

²⁴ Including the Electrical Development Company, the Toronto Power Company, and Toronto and York Radial Railway.

²⁵ The capital liabilities of the commission under these three heads stood as follows on October 31, 1925:

Direct advances from provincial treasury.....	\$132,000,000
Debentures issued by commission and guaranteed by province	22,641,000
Bonds and debentures assumed by commission and guaranteed by province.....	24,849,000
Total	\$179,490,000

²⁶ Ontario Power Commission Act, Section 23. Under the uniform accounting system administered by the commission, provisions for corresponding items in respect to municipal electric utilities are

included in the rates charged to municipal consumers.

²⁷ At times, the payment has involved additional temporary advances.

²⁸ At the end of the fiscal year 1924-25, the total capital liabilities under the commission's power undertakings amounted to \$173,489,168, against which sinking fund reserves totaling \$7,996,182 had been accumulated. The sinking fund period in connection with the Queenston-Chippawa development has been extended from the statutory 30 years to 45 years, and there has been a general tendency to defer the commencement of sinking fund payments for a 5-year period.

²⁹ 18th Annual Report, Ontario Hydro-Electric Power Commission, pp. 232-33.

power actually or potentially available to practically all the municipalities of Old Ontario. While no flat rate for the province has been adopted, the fixed costs of each system have been equitably prorated among the constituent municipalities. During the administration of the United Farmers of Ontario (1919-1922), the demand became insistent for the application of the pooling principle so as to make power available to rural consumers on terms similar to those enjoyed by urban users.

This proposal was opposed by certain of the "hydro" municipalities, whose rates would necessarily have been increased thereby. Nevertheless, a Rural Power Distribution Act was passed in the interests of rural communities where the load demanded in relation to transmission costs would not be sufficient, under ordinary conditions, to make power available at other than prohibitive rates. Under this act, the commission may enter into contracts with rural townships for the supply of power at subsidized rates to hamlets and farms within rural power districts comprising one or more townships. Where a minimum of three farm contracts per mile of line to be constructed is assured, provincial grants in aid are available to the extent of 50% of the cost of such pole lines.

Up to October 31, 1925, agreements had been executed with 147 townships, forming 94 rural power districts. The provincial grants in aid under these agreements amounted to \$1,616,557. This represents a direct treasury subsidy to agriculture at the expense of the general taxpayers, since proposals to provide for the subvention through taxation of provincial hydro properties were rejected. The scheme has permitted the supply of power to hamlet

and farm consumers at rates of from 3 to 6½ cents per kilowatt hour, according to the class of service.³⁰

While the availability of cheap power to rural communities is of manifest advantage in ameliorating the conditions of farm life and labor and in checking the tendency towards "rural depopulation," the actual load thus far distributed to rural districts represents a relatively insignificant proportion of the total energy supplied by the commission, amounting in 1925 to little more than 1%.

Hydro Radials in Ontario

In addition to supplying power to electric railways, both municipal and privately owned, the commission operates, as trustee for the municipalities concerned, three "hydro radial" railways: the Essex District Railways, the Guelph District Railways, and the Toronto and York District Railways. These three railways, having a combined route mileage of 120 miles, represent the embarrassing heritage of the provincial hydro radial scheme, which was strenuously championed by Sir Adam Beck and certain "hydro" municipalities between 1916 and 1921. The project involved the linking up of the municipalities of the Niagara power zone through a unified radial system, to be operated by the commission on behalf of the interested municipalities. Privately owned lines were to be bought out and connected by new construction. The requisite capital was to be furnished partly by the municipalities served, but mainly by the provincial treasury. Vigorous propaganda was conducted, and strong pressure, amounting to political threats, was brought to

³⁰ 18th Annual Report, Ontario Hydro-Electric Power Commission, p. 66.

bear upon the government by the Hydro Party.

Reference of the project to the Sutherland Commission by the government resulted in a pronouncedly adverse report. The increasing inroads on electric railway earnings through the extension of motor highways; the gratuitous competition to which a provincial radial system would subject the Ontario lines of the Grand Trunk and Canadian Northern railways, which the federal government had just been obliged to take over; and the heavy capital commitments of the province on account of the Queenston-Chippawa development—all these considerations pointed to the unwisdom and the untimeliness of the hydro radial scheme. Fortunately for the finances of the province, the Farmers' government as well as the preceding Conservative administration stood by the Sutherland Commission's findings.

In the three cases mentioned, however, the legislature authorized agreements made between the Hydro-Electric Commission and the municipalities concerned. The taking over of the

Toronto and York Radial Railway in 1921 was incidental to the joint acquisition by the commission and the city of Toronto of the Mackenzie power and electric railway interests. This "clean-up deal" has permitted the consolidation under the Toronto Transportation Commission of all electric lines within the city limits, to the general advantage of its citizens. Nevertheless, the radial mileage operated by the hydro commission on behalf of Toronto and the surrounding municipalities has involved considerable annual deficits which, while provisionally met by provincial treasury advances, are charged to the city of Toronto.²¹ The operating results of these limited hydro radial commitments are indicative of the financial burdens which the province and municipalities would have incurred, had the proposals of the hydro radial enthusiasts prevailed at the very time when electric railways generally were entering upon unprofitable days.

²¹ The deficit for 1924-25 amounted to \$247,122. The deficit on the Guelph District Railway was proportionately large.

THE SHARE OF AGRICULTURE IN THE NATIONAL INCOME

By HENRY C. TAYLOR and JACOB PERLMAN

THE purpose of this article is to show the share of the total national income received by agriculture in each year from 1909 to 1925. In order to do this, it is necessary to study prices, analyze the value of farm products, and calculate the expenses and compute the net income of agriculture, which, when compared with the total "current income" of the people of the United States, gives the share of agriculture in the national income.

I. Prices

Prices play a very important part in the determination of farm income. The prices which farmers receive for the products they sell affect the gross income of agriculture, while the prices which the farmers pay for the things used in production affect the costs and the net income of agriculture. This study will begin, therefore, with a survey of prices of both agricultural and nonagricultural products since 1910.

Prices of agricultural products. The prices of farm products used in this study are "farm prices." In other words, they are local market prices rather than central market or wholesale prices. Although the figures for farm prices may not be as accurate as those for wholesale prices, it is better to use them in preference to the latter because they are more closely connected with the farmers' income. The United States Department of Agriculture compiles each month a weighted index number of farm prices of 30 principal agri-

cultural commodities with the average of August, 1909, to July, 1914, as a base, or 100. This index number is intended to indicate the general level of farm prices. The figures for the period from January, 1910, to January, 1927, by months in terms of this index number are shown in Table I and are plotted on Chart I.

The index numbers of farm prices of agricultural products may be divided into three periods, each of which shows a different trend. The first period covers the years from the beginning of 1910 until the end of 1915. During these years the farm prices of agricultural products were more or less stationary; hence the index numbers of farm prices fluctuated around 100.

The second period extends from the beginning of 1916 to the middle of 1920. This was a period of extraordinary price inflation. During these years farm prices went up very rapidly until the index number reached 235 in May, 1920, which was 135% above the prewar level and was the highest point reached either during or after the war.

The third period covers the months from May, 1920, to January, 1927. This was a period of price deflation. A precipitous drop in farm prices occurred during the 12-months' period from the middle of 1920 until the middle of 1921. During this time the index numbers of prices of farm products fell from 234 in June of 1920 to about 110 in June of 1921, a drop of 53%. This was followed by four years, from

TABLE I. INDEX NUMBERS OF FARM PRICES OF 30 AGRICULTURAL PRODUCTS, BY MONTHS, 1910-1927*
(August, 1909 - July, 1914=100)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Average for year..	103	95	99	100	102	100	117	176	200	209	205	116	124	135	134	147	136	....
January.....	106	100	94	95	104	100	104	140	194	200	219	135	114	134	137	146	143	126
February.....	105	97	97	96	105	101	106	148	197	194	221	128	118	136	136	146	143	....
March.....	107	95	99	97	104	100	108	159	199	197	222	123	123	136	131	151	140	....
April.....	108	94	104	98	104	102	110	176	200	207	230	115	123	137	130	147	140	....
May.....	105	94	107	98	104	104	111	188	198	215	235	112	127	135	129	146	139	....
June.....	104	95	104	99	104	101	112	188	196	216	234	110	128	133	130	148	139	....
July.....	102	95	101	99	103	99	113	185	197	222	224	111	126	130	132	149	136	....
August.....	102	96	100	101	104	97	117	183	203	222	209	116	120	128	139	152	133	....
September.....	102	95	98	103	102	97	123	184	207	208	194	118	119	132	132	144	134	....
October.....	101	92	97	104	98	101	128	187	204	206	178	120	123	134	138	143	130	....
November.....	99	92	95	104	96	99	137	187	200	209	158	116	126	136	137	144	130	....
December.....	99	92	95	103	97	100	139	191	201	212	140	115	131	137	139	143	127	....

*Computed by United States Department of Agriculture, "Index Numbers of Farm Prices," Supplement to *The Agricultural Situation*, June, 1925, pp. 22-27, and *The Agricultural Situation*, September, 1926, p. 9 and March, 1927, p. 9.

the middle of 1921 until the latter part of 1925, during which prices improved slightly. The index numbers of farm prices rose during this period from 110 in June, 1921, to 152 in August, 1925. After that they again assumed a downward trend.

In January, 1927, the index stood at 126, which represented a drop of 17% from the figure of August, 1925. This was 26% above the prewar level, but 46% below the high point of May, 1920.

Prices of nonagricultural products. In order to have an index for the prices of nonagricultural products that would be strictly comparable to the one for "farm prices" of agricultural products, it should be based on retail prices, or those prices which the farmers pay for the goods they buy. Unfortunately, there is no such index number of retail prices. The best thing available for present purposes is an index number of wholesale prices of nonagricultural products, computed by the United States

Bureau of Labor Statistics from its general index number of wholesale prices by eliminating those commodities which originate on the farm. The period from 1910 to 1914 is used as a base. The only difficulty in using the wholesale price index arises out of the fact that the retail prices of nonagricultural products may not have maintained the same relation to wholesale prices throughout the period. The index numbers of wholesale prices of nonagricultural commodities are given by months in Table II and are also plotted on Chart I.

The index numbers of the wholesale prices of nonagricultural commodities indicate three periods. The first period covers the years from 1910 until the latter part of 1915. The index numbers of wholesale prices of nonagricultural commodities remained more or less stationary or fluctuated around 100 during this period. The second period began toward the end of 1915 and continued until about the middle of 1920.

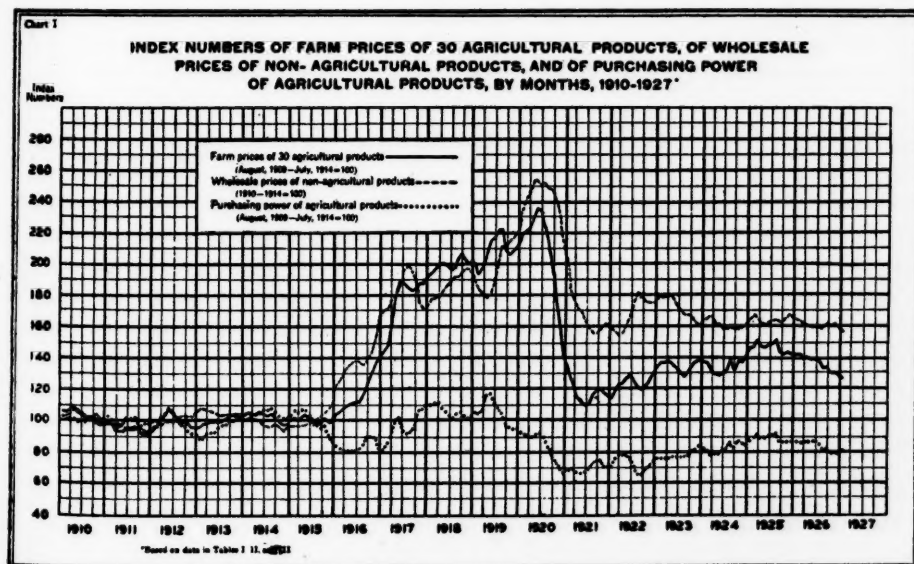


TABLE II. INDEX NUMBERS OF WHOLESALE PRICES OF NON-AGRICULTURAL PRODUCTS, BY MONTHS, 1910-1927*
(1910-1914=100)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Average for year..	102	96	100	105	97	101	138	182	188	199	241	167	168	171	162	165	161	.....
January.....	103	97	95	107	100	96	122	170	177	188	236	196	158	177	164	165	165	156
February.....	103	97	96	107	100	96	126	173	178	184	244	185	156	178	166	167	164	.....
March.....	104	99	97	106	101	96	132	176	180	181	247	177	155	179	166	165	162	.....
April.....	107	97	100	106	100	96	134	179	183	179	254	171	156	180	164	162	160	.....
May.....	106	96	100	105	98	97	136	185	186	183	254	168	164	176	162	161	160	.....
June.....	104	94	100	104	97	98	137	195	188	194	250	164	168	172	159	163	160	.....
July.....	103	94	100	104	96	100	136	199	192	204	251	159	177	169	158	164	159	.....
August.....	102	95	101	104	96	101	135	196	193	211	249	156	182	167	159	164	160	.....
September.....	100	95	102	104	97	103	137	189	195	213	246	156	179	167	158	163	161	.....
October.....	98	94	103	104	95	105	143	175	196	215	237	159	176	165	158	164	160	.....
November.....	97	94	103	103	94	109	155	173	196	219	221	161	175	163	160	166	161	.....
December.....	98	94	104	101	95	115	166	174	193	224	208	161	175	162	163	165	158	.....

*United States Department of Agriculture, "Index Numbers of Farm Prices," Supplement to *The Agricultural Situation*, June, 1925, p. 30, and *The Agricultural Situation*, September, 1926, p. 9, and March, 1927, p. 9. Compiled by the United States Bureau of Labor Statistics from wholesale prices of all commodities except those originating on farms, with 1910-1914 at 100.

During this time the wholesale prices of nonagricultural goods advanced very rapidly. The highest point was reached in April, 1920, when the index number of wholesale prices of nonagricultural commodities was 254. The third period began in the summer of 1920. During the first year of that period, there was a marked drop in prices. The index number fell from 254 in April of 1920 to 156 in August, 1921, or 39%. Then came a temporary partial recovery which lasted for about a year, after which the wholesale prices of nonagricultural commodities returned approximately to the level of 1921 and continued more or less stationary. In January, 1927, the index number of wholesale prices for nonagricultural commodities was 156, or 56% higher than during the prewar period, but 39% below the high point of April, 1920. In other words, during the latter part of the period under consideration, nonagricultural prices have been relatively stable.

Relation between prices of agricultural products and nonagricultural products. A comparison of the index number of farm prices of agricultural products with that of wholesale prices of nonagricultural products indicates the purchasing power of farm products when exchanged for commodities not produced on farms. As long as farm prices and nonagricultural prices go up or go down together, the producers of neither one suffer from the maladjustment of price ratios. However, if prices of one class of products lag behind, the producers of that class are bound to find themselves at a disadvantage. These two indexes of prices form the basis for computing the index numbers of purchasing power of the products in the one class when exchanged for the products in the other. By

dividing the index numbers of farm prices of agricultural products by the index numbers of nonagricultural products we get an index number of the purchasing power of farm products. The results of such calculations are given by months from January, 1910, to January, 1927, in Table III and are also plotted on Chart I.

The curve which represents the index numbers of purchasing power of farm products indicates the period during which the farmers were favored and the periods during which they were at a disadvantage. From 1910 to 1915, both the index numbers of farm prices and of nonagricultural prices fluctuated around the base level, or 100. The same was true of the index numbers of purchasing power. Then both the index number of farm prices and that of nonagricultural prices began to rise. During 1916 and most of 1917, nonagricultural prices went up faster than farm prices, which reduced the index number of purchasing power of farm products below 100. Then, for about two years from the latter part of 1917 to the latter part of 1919, the situation was reversed. The index of farm prices overtook and passed above that of nonagricultural prices, which immediately brought the index number of purchasing power of farm products above 100. The highest point reached during the period was 117 in May, 1919. Then nonagricultural prices again began to go up faster than agricultural prices, which made the index number of purchasing power of farm products fall.

When the break came in the early part of 1920, farm prices fell much faster than nonagricultural prices. This caused the index number of purchasing power of farm products to fall to still lower levels. The lowest point was

TABLE III. INDEX NUMBERS OF PURCHASING POWER OF AGRICULTURAL PRODUCTS, BY MONTHS, 1910-1927*
(August, 1909 - July, 1914=100)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Average for year..	101	99	99	95	105	99	85	97	107	105	85	69	74	79	83	89	85	....
January.....	103	103	100	88	104	104	85	83	110	106	93	69	72	76	84	88	87	81
February.....	102	100	100	89	105	106	84	86	111	105	91	69	76	76	82	88	87	....
March.....	103	96	102	91	104	105	82	90	111	109	90	70	79	76	79	91	87	....
April.....	101	97	104	93	104	107	82	98	109	116	90	67	79	76	80	90	88	....
May.....	99	98	107	93	106	107	82	101	106	117	92	66	78	77	80	90	87	....
June.....	100	101	105	95	107	103	82	96	104	112	93	67	76	77	82	91	87	....
July.....	99	101	101	96	107	99	83	93	102	109	90	70	71	77	83	91	85	....
August.....	100	102	99	97	108	97	86	94	105	105	84	74	66	77	87	93	83	....
September.....	102	99	96	99	105	95	90	97	106	98	79	75	66	79	83	88	83	....
October.....	104	97	94	100	103	96	90	107	104	96	75	75	70	82	87	87	81	....
November.....	102	98	92	101	102	91	88	108	102	95	72	72	72	83	86	87	80	....
December.....	101	98	91	103	102	87	84	110	104	95	67	72	75	85	85	87	80	....

*United States Department of Agriculture, "Index Numbers of Farm Prices," Supplement to *The Agricultural Situation*, June, 1925, pp. 48-55, and *The Agricultural Situation*, September, 1926, p. 9, and March, 1927, p. 9. These figures were obtained by dividing the index numbers of farm prices of agricultural products by the index numbers of wholesale prices of nonagricultural products.

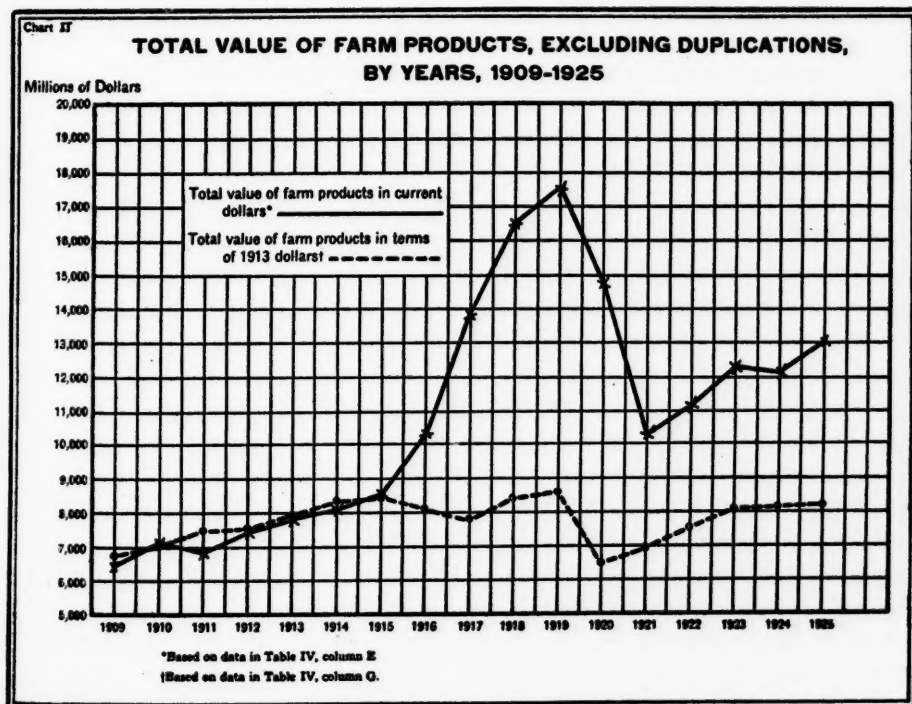
reached in 1921, when the index number of purchasing power of farm products reached 66 in May of that year. Then there was a gradual recovery for about a year, which was again followed by a drop in the index number of purchasing power of farm products to 66 in August of 1922. During the next three years, that is, from the latter part of 1922 until the latter part of 1925, the index of purchasing power of farm products improved, reaching 93 in August, 1925. This was due to the improvement in farm prices relative to nonagricultural prices. After that date, the index number of purchasing power of farm products took a downward trend, reaching the low point of 80 in November, 1926. This may be explained by the fact that after the latter part of 1925 farm prices were continu-

ally falling, while nonagricultural prices were changing but little. In January, 1927, the index number of purchasing power of farm products was 81. This was 13% lower than in August, 1925, and 19% below the prewar level.

II. The Value of Farm Products

Prices constitute only one of the factors that enter into the gross income of agriculture. The quantity of goods produced each year constitutes another factor to be considered. By multiplying the quantity produced by price we get the value of farm products.

The United States Department of Agriculture has published statistics of the value of farm products for each year since 1909. The Department estimates the value of all crops on the basis



of quantity produced and the weighted average prices of these crops during the year. The value of the crops which are not fed to live stock is then computed. Estimates are also made of the value of animal products sold or consumed. By adding the value of crops not fed and the value of animal products we get the total value of farm products, excluding duplications. These figures are in terms of current dollars. However, by dividing the latter by index numbers of wholesale prices of all commodities with 1913 as a base, a figure is obtained for the value of farm products in terms of 1913 dollars. These figures appear in Table IV and are plotted on Chart II.

By looking at the curve representing the total value of farm products in current dollars on Chart II, it will be seen that the value of farm products went up gradually from \$6,472,000,000 in

1909 to \$8,638,000,000 in 1915. After that, the increase in total value of farm products in current dollars was greatly accelerated, partly because of increased production but largely because of inflated prices. By 1919, the value of farm products had reached a total of \$17,077,000,000. From 1919 until 1921 the total value of farm products in current dollars declined, reaching \$10,268,000,000 in 1921. Since then there has been a gradual increase in the total value of farm products. In 1925, the figure was \$13,031,000,000.

A different picture is obtained by looking at the curve in Chart II which shows the total value of farm products in terms of 1913 dollars. The value in terms of 1913 dollars went up from \$6,679,000,000 in 1909 to \$8,569,000,000 in 1915. After that it fluctuated, but maintained a level far below the value expressed in current dollars.

TABLE IV. VALUE OF FARM PRODUCTS, BY YEARS, 1909-1925*

A	B	C	D	E	F	G
Calendar Year	Value of Crops* (millions)		Value of Animal Products* (millions)	Total Value of Farm Products Excluding Duplications in Current Dollars (millions) C+D	Index Numbers of Wholesale Prices of All Commodities† (1913=100)	Total Value of Farm Products, Excluding Duplications in Terms of 1913 Dollars (millions) E+F
	All Crops	Crops Not Fed to Livestock				
1909.....	5,483	3,074	3,398	6,472	96.9	6,679
1910.....	6,211	3,449	3,743	7,192	100.9	7,128
1911.....	6,495	3,507	3,485	6,992	93.0	7,518
1912.....	6,799	3,689	3,778	7,467	99.1	7,535
1913.....	6,717	3,787	4,099	7,886	100.0	7,886
1914.....	7,268	3,916	4,249	8,165	98.1	8,323
1915.....	7,957	4,335	4,303	8,638	100.8	8,569
1916.....	10,305	5,497	4,862	10,359	126.8	8,170
1917.....	14,277	7,410	6,539	13,949	177.2	7,872
1918.....	14,814	8,422	8,082	16,504	194.3	8,494
1919.....	16,561	9,402	8,275	17,677	206.4	8,564
1920.....	11,578	7,102	7,709	14,811	226.2	6,548
1921.....	7,759	4,679	5,589	10,268	146.9	6,990
1922.....	9,430	5,560	5,651	11,211	148.8	7,534
1923.....	10,401	6,111	6,271	12,382	153.7	8,056
1924.....	10,770	6,317	5,902	12,219	149.7	8,162
1925.....	10,269	6,337	6,694	13,031	158.7	8,211

*Estimates of United States Department of Agriculture, *Crops and Markets*, July, 1926, p. 227.

†United States Bureau of Labor Statistics, Bulletin No. 415, *Wholesale Prices, 1890 to 1925*, p. 9.

The lowest point was reached in 1920, when the total value of farm products in terms of 1913 dollars amounted to \$6,548,000,000. By 1925, the figure had risen to \$8,211,000,000.

III. Net Income and the Share of Agriculture in the National Income

The figures for the value of farm products in current dollars provide a basis for computing the gross income of agriculture. From the total value of crops not fed and animal products

sold or consumed were subtracted estimates of the value of crops used for seed or wasted. To the remainder was added the estimated pure rental value of farm dwellings. The sum is the gross income of agriculture. From this gross income were deducted estimates of business expenses and taxes. The remainder is the estimated net income of agriculture. The estimates for gross income, deductions for business expenses and taxes, and net income are shown in Table V.

Net income in terms of current dol-

TABLE V. NET INCOME OF AGRICULTURE, BY YEARS, 1909-1926

A	B	C	D	E
Year	Gross Income	Business Expenses	Taxes on Total Capital Investment	Net Income B—(C+D)
Calendar year	(a)	(c)	(e)	
1909.....	\$ 6,477	\$ 674	\$225	\$ 5,578
1910.....	7,204	809	240	6,155
1911.....	6,991	875	260	5,856
1912.....	7,482	880	285	6,317
1913.....	7,895	977	315	6,603
1914.....	8,131	1,010	350	6,771
1915.....	8,565	1,012	400	7,153
1916.....	10,129	1,188	450	8,491
1917.....	13,658	1,707	500	11,451
1918.....	16,186	2,250	550	13,386
1919.....	17,398	2,797	621	13,980
1920.....	14,542	3,498	750	10,294
Crop year	(b)	(d)	(f)	
1919-1920.....	16,098	3,306	532	12,260
1920-1921.....	13,049	3,689	746	8,614
1921-1922.....	9,597	2,448	799	6,350
1922-1923.....	10,751	2,501	845	7,405
1923-1924.....	11,674	2,760	858	8,056
1924-1925.....	12,391	2,865	870	8,656
1925-1926.....	12,805	3,076	870	8,859

(a) Based on estimates of United States Department of Agriculture of total value of farm products, excluding duplicates, which are shown in Table IV, column E. These estimates cover the value of all farm products except that part of the crops used as feed. From these figures were deducted estimates of the value of crops used for seed and wasted, which gives the value of farm products sold and used as food and fuel on the farm. To these figures were then added estimates of the pure rental value of farm dwellings, thus giving the gross income of agriculture.

(b) Based on estimates of United States Department of Agriculture, *Crops and Markets*, July, 1926, p. 228. These estimates include the value of all farm products less the value of products fed, used for seed, and wasted, which likewise gives the value of farm products sold and used as food and fuel by farmers. To these figures were added estimates of the pure rental value of farm dwellings, thus giving the gross income of agriculture comparable to the data for the period from 1909 to 1920.

(c) Based on estimates of W. I. King of National Bureau of Economic Research, *Income in the United States*, Volume II, p. 54. These figures, excluding the interest paid to banks for loans, were adjusted to make them comparable to the figures on business expenses computed by United States Department of Agriculture for the period from 1919 to 1926.

(d) Estimates of United States Department of Agriculture, *Crops and Markets*, July, 1926, p. 228. These figures cover the amount paid for the products and services of other industries and repairs and maintenance of buildings and equipment used in production.

(e) Estimates of L. M. Graves, "Interest and Taxes in Relation to Farm Income," in *The Annals of the American Academy of Political and Social Science*, January, 1935, p. 37. These figures are given for fiscal years but are used here as of calendar years.

(f) Furnished by United States Department of Agriculture.

TABLE VI. PURCHASING POWER OF NET INCOME OF AGRICULTURE, BY YEARS, 1909-1925

A	B	C	D
Calendar Year	Net Income in Current Dollars (millions)	Index Numbers of Cost of Living† (1913=100)	Net Income in Terms of 1913 Dollars (millions) B÷C
1909.....	5,578*	88.7	6,289
1910.....	6,155*	93.0	6,618
1911.....	5,856*	92.0	6,365
1912.....	6,317*	97.6	6,472
1913.....	6,603*	100.0	6,603
1914.....	6,771*	103.0	6,574
1915.....	7,153*	105.1	6,806
1916.....	8,491*	118.3	7,178
1917.....	11,451*	142.4	8,041
1918.....	13,386*	174.4	7,675
1919.....	13,980*	188.3	7,424
1920.....	10,549†	208.5	5,059
1921.....	6,696†	177.3	3,777
1922.....	6,976†	167.3	4,170
1923.....	8,070†	171.0	4,719
1924.....	8,390†	170.7	4,915
1925.....	8,839†	173.5	5,095

* See Table V, column E.

† Based on figures in Table V, column E, which have been converted from a crop year basis to a calendar year basis with the aid of the monthly figures of money income of agriculture from 1919 to 1926, *Crops and Markets*, October, 1926, p. 343.

‡ United States Bureau of Labor Statistics, *Monthly Labor Review*, January, 1926, p. 17.

lars and in terms of 1913 dollars is shown in Table VI on the calendar year

basis for the whole period and is plotted on Chart III.

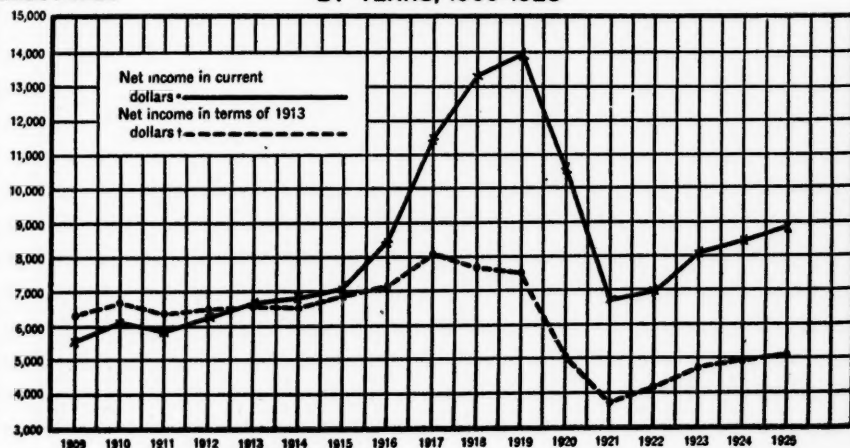
In 1909, the net income of agriculture in current dollars amounted to \$5,578,000,000. Then it gradually rose until 1915, when it amounted to \$7,153,000,000. After 1915, its rise was very rapid, the net income in current dollars having reached the highest point in 1919, when it amounted to \$13,980,000,000. During the next two years it declined. In 1921 it was \$6,696,000,000. After that date it went up gradually, and the net income figure for 1925 was \$8,839,000,000.

The net income in terms of 1913 dollars was obtained by dividing the net income in current dollars by the index numbers of cost of living. Until 1915, the net income in terms of 1913 dollars remained more or less stationary. Then it began to go up and reached the highest point for the entire period in 1917, when it amounted to \$8,041,000,000. Then it began to drop, first gradually and then very rapidly, until it reached

Chart III

PURCHASING POWER OF NET INCOME OF AGRICULTURE, BY YEARS, 1909-1925

Millions of Dollars



*Based on data in Table VI, column B.

†Based on data in Table VI, column D.

the bottom in 1921, when the net income in terms of 1913 dollars amounted to only \$3,777,000,000. Since then it has been going up gradually and in 1925 amounted to \$5,095,000,000.

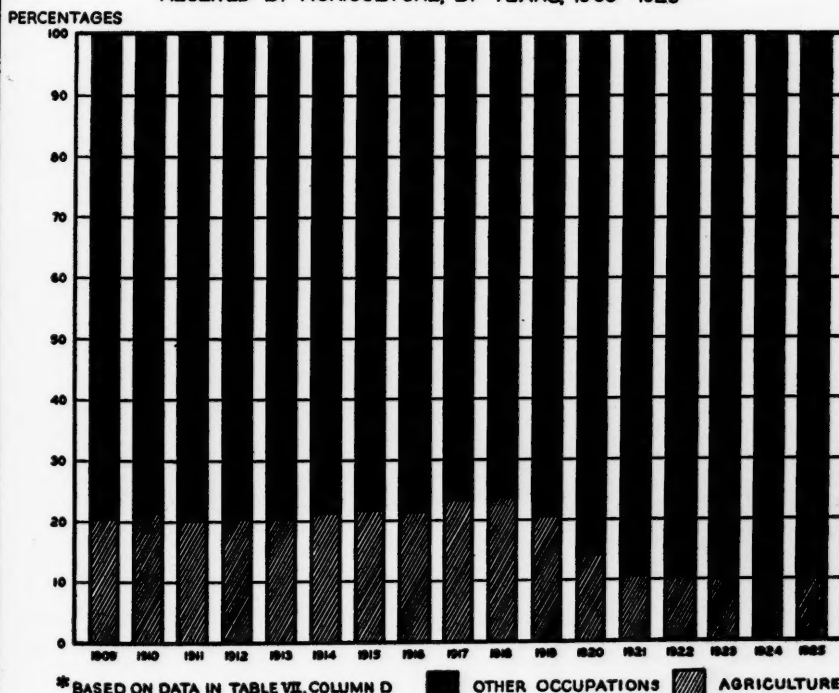
To compute the share of agriculture in the total national income each year from 1909 to 1925, the net income of agriculture was divided by the total "current income" of the people of the United States, as computed by W. I. King of the National Bureau of Economic Research.¹ The result gives the

percentages of the total "current income" received by agriculture for each year. The data used and the percentages obtained appear in Table VII. The percentages of the total "current income" received by agriculture and by other occupations are shown on Chart IV.

A glance at Table VII and Chart IV will bring out clearly the economic condition of agriculture as compared with that of all other occupations by years from 1909 to 1925. Prior to 1917, the share of agriculture in the total "current income" remained relatively stable. The percentages received by agriculture fluctuated between 20% and

¹*News Bulletin*, National Bureau of Economic Research, February 21, 1927, p. 2. The figures for the period from 1922 to 1925 are preliminary.

CHART IV
PERCENTAGE OF TOTAL 'CURRENT INCOME' OF PEOPLE OF UNITED STATES
RECEIVED BY AGRICULTURE, BY YEARS, 1909-1925 *



22%. This indicates that the rate of increase in the net income of agriculture was keeping pace with that in other occupations. During the years 1917 and 1918, the rate of increase in the net income of agriculture was greater than in other industries. As a result, the share of agriculture in the total "current income" of the nation increased to 24%. This advantage, however, disappeared in 1919, when the total "current income" increased considerably, while the net income of agriculture rose only slightly, thus reducing the percentage share of agriculture to 21. During 1920, while the total "current income" increased, the net income of agriculture dropped more than three billions. The result was that the share of agriculture fell to 14% of the total

"current income" of the people of the United States. In 1921, the total "current income" showed an enormous drop, but the drop in the net income of agriculture was relatively greater, and as a result the share of agriculture fell below 11%. During the years from 1921 to 1924, the total "current income" increased rapidly, but the share of agriculture remained about stationary at the level of 1921. In 1925, the total "current income" increased relatively more than the net income of agriculture, thus reducing the share of agriculture to about 10%.

In 1925, the share of agriculture in the total "current income" of the people of the United States was less than one-half of what it was before the war. A part of this reduction may be explained by the relative and absolute decrease in farm population, but, if allowance is made for this reduction, the most conservative estimate of the share agriculture should have received in 1925, in order to be on a parity with the prewar period, is not less than 15% of the total, or 50% greater than it actually was in that year.

It should be pointed out that while the percentage share of agriculture in the total "current income" of the nation shrank to one-half of what it was before the war, the share received by farmers probably shrank even more, because of an increase in the rent and interest paid by farmers to nonfarmers.

IV. Farm Insolvency, 1920-1925

These fluctuations of prices and of agriculture's share of the national income are reflected in the record of farm insolvency since 1920. From the foregoing analysis it should be clear that while farmers have had to con-

TABLE VII. SHARE OF AGRICULTURE IN TOTAL "CURRENT INCOME" OF PEOPLE OF UNITED STATES, BY YEARS, 1909-1925

A	B	C	D
Calendar Year	Total "Current Income" of People of United States* (millions)	Net Income of Agriculture† (millions)	Percentages of Total "Current Income" of People of United States Received by Agriculture C + B
1909.....	27,100	5,578	20.6
1910.....	28,400	6,155	21.7
1911.....	29,000	5,856	20.2
1912.....	30,600	6,317	20.6
1913.....	32,000	6,603	20.6
1914.....	31,600	6,771	21.4
1915.....	32,700	7,153	21.9
1916.....	39,200	8,491	21.7
1917.....	48,500	11,451	23.6
1918.....	56,000	13,386	23.9
1919.....	67,254	13,980	20.8
1920.....	74,158	10,549	14.2
1921.....	62,736	6,696	10.7
1922.....	65,567	6,976	10.6
1923.....	76,769	8,070	10.5
1924.....	79,365	8,390	10.6
1925.....	86,461	8,839	10.2

* Estimates of W. I. King of National Bureau of Economic Research, *News Bulletin*, February 21, 1927, page 2. The figures for the period from 1922 to 1925 are preliminary.
† See Table VI, column B.

tend since 1920 with low prices for their products, their expenses—both production costs and taxes—have been at a relatively high level. The resultant small net income has made it impossible for many farmers to meet their financial obligations, a considerable portion of which were contracted when farm values were very high. This situation is portrayed by the available data on farm bankruptcies and changes in the ownership of farms.

Table VIII shows the number of farm bankruptcies by fiscal years from 1910 to 1925. These figures are based on the records of bankruptcy courts as reported to the Department of Justice. Owing to the fact that farmers as a rule do not resort to bankruptcy courts when forced to surrender their property to creditors, the number of bankruptcies among farmers during each year is not very large. However, by comparing one period with another, the

changes in the number of farm bankruptcies are shown, which helps to indicate the relative increase of farm insolvency.

Since 1920, the number of farm bankruptcies has increased each year, and in 1925 the number was eight times as large as it was in 1920. During the five-year period before the war, from 1910 to 1914, the average number of farm bankruptcies per annum was 870; during the five-year period after the war, from 1921 to 1925, the average annual number was 5,237, which is six times greater than during the prewar period. In 1920, 6% of all bankruptcy cases were farm bankruptcies, but in 1925 the number of farm bankruptcies constituted 18% of all cases. During the period from 1910 to 1914, the average proportion of farm bankruptcies per year was 5%, but during the period from 1921 to 1925 the yearly average increased to 15%.

TABLE VIII. FARM BANKRUPTCIES, BY YEARS, 1910-1925*

Fiscal Year Ending June 30	All Bankruptcies	FARM BANKRUPTCIES	
		Number	Percentage of All Bankruptcies
1910	14,795	849	5.7
1911	14,150	679	4.8
1912	15,589	837	5.4
1913	17,588	942	5.4
1914	18,741	1,045	5.6
1915	21,233	1,246	5.9
1916	23,931	1,658	6.9
1917	25,265	1,906	7.5
1918	23,462	1,632	7.0
1919	19,301	1,207	6.3
1920	15,583	997	6.4
1921	15,162	1,363	9.0
1922	22,462	3,236	14.4
1923	34,236	5,940	17.4
1924	41,524	7,772	18.7
1925	44,236	7,782	17.8

* *Agriculture Year-books*, 1923, pp. 1158-1160; 1924, p. 1130; and 1925, p. 1386. Compiled by United States Department of Agriculture from annual reports of the Attorney-General.

Table IX shows the number of farm bankruptcies per 100,000 farms for each census year since 1910. The rate of farm bankruptcies per 100,000 increased from 13.3 and 15.4, respectively, in 1910 and 1920, to 123.5 in 1925.

A more complete story of the failure of farm enterprises in recent years is told by several inquiries made by the United States Department of Agriculture. One inquiry is based on reports from 15 states covering the period from January, 1920 to March, 1923. It showed that out of about 68,000 farm owners included in the survey, 4.5% lost their farms without legal proceedings, and about 15% had been spared such loss up to March, 1923, owing to the leniency of their creditors. With respect to about 26,000 tenant farmers covered by this survey, it was shown that 7.2% lost property by foreclosure or bankruptcy, 7.8% lost property without legal proceedings, and 21.3% retained their property only through the leniency of their creditors.²

Another inquiry was made in 1925 covering the calendar year 1924. It disclosed that of the total changes in farm ownership about 34.5%, or more than one-third, were due to forced sales and

similar defaults.³ A similar study was conducted in 1926 covering the year ending March 15, 1926. A summary of this study, showing the number of farms per 1,000 changing ownership by various methods for the United States as a whole and for each of its geographic divisions, appears in Table X. The analysis shows that about 21 farms per 1,000 changed ownership as a result of forced sales and related defaults, 4 having changed because of delinquent taxes and 17 because of foreclosure of mortgages, bankruptcy, default of contract, or other transfer to avoid foreclosure. If we estimate the number of farms in the United States on January 1, 1926, at about 6,356,000,⁴ it would mean, on the basis of 21.39 changes in ownership per 1,000 farms, that the total number of farms changing ownership in the 12 months' period ending March 15, 1926, on account of forced sales and related defaults, amounted to 444 a day. It will also be seen from Table X that the number of changes in ownership due to forced sales and related defaults per 1,000 farms was lowest in the New England and Middle Atlantic states and highest in the West North Central and Mountain states. In 1925-1926, the percentage of all changes in ownership due to forced sales and related defaults was 35.5, or somewhat larger than in 1924.⁵

TABLE IX. RATE OF BANKRUPTCIES PER 100,000 FARMS DURING CENSUS YEARS OF 1910, 1920, AND 1925

Census Year	Number of Farm Bankruptcies*	Number of Farms	Number of Bankruptcies per 100,000 Farms
1910	849†	6,361,502‡	13.3
1920	997†	6,448,343‡	15.4
1925	7,872‡	6,371,617¶	123.5

* Fiscal year ending June 30.

† *Agriculture Year-book*, 1923, pp. 1158-1160.

‡ *Ibid.*, 1925, p. 1386.

§ *Abstract of the Fourteenth Census of the United States*, 1920, p. 583.

¶ Preliminary announcement of 1925 Farm Census.

V. Causes of Maladjustment of Price Ratios

The beginning of the agricultural

² *Agriculture Year-book*, 1923, p. 121.

³ United States Department of Agriculture, *The Farm Real Estate Situation*, 1926, Department Circular 377, p. 14.

⁴ Estimated along a straight line on the basis of census data for 1920 and 1925.

⁵ *The Farm Real Estate Situation*, 1926, pp. 11-16.

depression in 1920 was marked by a precipitous fall in the prices of farm products followed by a decline in land values. This feature of the depression is a characteristic of all economic depressions. The central feature of the after-war depression in American agriculture is the maladjustment of price ratios. As shown in Section III above, inflation carried the prices of agricultural products and nonagricultural products up to high levels without any serious maladjustment between the prices of agricultural products and the prices of things which farmers buy. But in the deflation period conditions were different. The deflation of prices took place very much more rapidly in the case of agricultural products than in the case of nonagricultural products. The result has been not simply a temporary maladjustment of price ratios or relative purchasing power of products, but a maladjustment which has continued for about seven years, and which shows no signs of immediate improvement. The facts regarding these price ratios are shown in Section I.

It is also shown in that section that

prices of farm products in current money are higher than they were before the war. Apparently, therefore, the great reduction in the value of land is in large measure due to the fact that a greater proportion of the income of the farm is needed to buy the necessities and conveniences of life than was the case before the war. This applies not only to the things which farmers buy and bring into their homes, but also to the cost of the education of the children.

Maladjustment of price ratios being the essential cause of the depressing agricultural situation which has persisted since 1920, it is proper to ask ourselves, what are the causes of the maladjustment of price ratios? Most of the causes may be summarized for convenience under two headings: first, the unbalanced economic life of the nation; and second, artificial price influences brought about by legislation and organization; yet in reality the two are inextricable.

Unbalanced Production and Its Causes

Before taking up the artificial influ-

TABLE X. NUMBER OF FARMS PER 1,000 CHANGING OWNERSHIP BY VARIOUS METHODS, BY GEOGRAPHIC DIVISIONS, DURING YEAR ENDED MARCH 15, 1926*

Geographic Divisions	Inheritance and Gift	Forced Sales and Related Defaults			Voluntary Sales and Trades, including Contracts to Purchase (but not Options)	All other Changes in Ownership not Otherwise Classified	Total Changes in Ownership
		Delinquent	Foreclosure of Mortgage Bankruptcy, Default of Contract, or other Transfer to Avoid Foreclosure	Total			
	Per 1,000	Per 1,000	Per 1,000	Per 1,000	Per 1,000	Per 1,000	Per 1,000
United States.....	7.08	4.12	17.27	21.39	29.56	2.25	60.28
New England.....	6.68	4.49	9.20	13.69	34.02	1.90	56.29
Middle Atlantic....	6.89	2.92	8.75	11.67	35.37	2.47	56.40
East North Central	7.31	3.17	15.72	18.89	25.81	2.01	54.02
West North Central	7.42	4.16	26.54	30.70	22.99	2.50	63.61
South Atlantic....	8.39	5.39	13.45	18.84	27.99	1.96	57.18
East South Central	7.59	3.75	12.38	16.13	33.53	1.81	59.06
West South Central	5.98	3.40	15.26	18.66	34.66	2.17	59.06
Mountain.....	4.26	9.79	40.41	19.74	31.98	3.51	89.95
Pacific.....	5.12	3.45	16.29	19.74	35.64	3.34	63.84

* United States Department of Agriculture, *The Farm Real Estate Situation*, 1926, Department Circular 377, pp. 12-13.

ences which have tended to modify the proportion of the labor and capital of the nation which can with profit be devoted to agriculture and the proportion that can profitably be devoted to other industries, we may mention some of the other conditions which have at the same time led to an expansion of agriculture. Agriculture has expanded as a war measure. It has been estimated that 40,000,000 acres of additional crop land were brought into use during the war as a result of special wartime stimuli. Of the various methods that were used to stimulate agricultural production during the war, the appeal to patriotism was probably the most effective. Associated with the appeal to patriotism was the guaranty of a minimum price for wheat which in administration became virtually a fixed price. In the case of pork, statements were made by the Food Administration which were interpreted by farmers as being a guaranty of a price for hogs that would sustain a certain ratio to the price of corn. The fact that it was later claimed by the Food Administration that its statements had been misconstrued does not change the fact that the statement was so interpreted by farmers as to be an important factor in expanding production. That, indeed, was the intended result. These proposals to sustain the price of wheat and pork were supplemented by statistical statements issued by the Food Administration which, although apparently without adequate foundation in fact, may have been justifiable war measures. At any rate, they intensified the patriotic and the financial appeals to farmers. Thus agriculture was expanded at the behest of the government as represented by the Food Administrator.

Another important feature of the expansion of agriculture for war pur-

poses is that this expansion was in the same lines of production as are characteristic of peacetime agriculture, so that an adequate expansion for war purposes meant overproduction for peacetime. In the case of manufacturing industries, on the other hand, it is a matter of common knowledge that the major war industries were devoted to the production of special war supplies which were not in demand in time of peace. Furthermore, many of the normal activities of city industries were in part suspended during the war. Thus, when the war was over agriculture in general was overexpanded and many peacetime city industries were underdeveloped rather than over-developed.

The wartime city industries were, however, without a market for their products at the close of the war. This might have proved as disastrous to the city industries as the overexpansion of agriculture has proved to farmers, had not the government borne the expense of dismantling the city war industries, thus providing the capital for making the necessary readjustments to peacetime conditions. If 10% of our agriculture had been judiciously dismantled at the expense of the government at the close of the war, those who needed to get out of agriculture into other industries would have been free to do so and would have had the means to enter new occupations. This would have brought about a better balance between agriculture and other industries and would have avoided the maladjustment of price ratios which has been financially so disastrous to the farmers and which has been so blighting to the rural population.

The dismantling process has gone on. Thirty-one million acres of farm land have gone out of use. Millions of the farm population have moved to towns

and cities, and yet agricultural production has not been reduced to the point of reestablishing normal price ratios. This is partly because new methods of production were introduced during and since the war. Owing to the scarcity of labor, machinery such as tractors, "combines," and milking machines have come into use as substitutes for labor and animal power.

Thus a combination of circumstances has operated to maintain agricultural production at a time when, owing to domestic conditions partly natural and partly artificial, a reduction in agricultural production was essential if agriculture as a whole was to prove profitable. But whether agriculture should be further reduced or some of the artificial conditions that seem to make that reduction necessary should be removed is a matter which should receive serious consideration.

The amount of agriculture a nation should have as a basis of maximum national well-being depends upon the relative abundance of the natural resources available as a basis for agriculture and for other industries. On this basis we probably do not have too much agriculture in the United States at the present time. The principle of the protective tariff has been injected into our national life with the thought that, although it stimulates for a time certain industries which would otherwise prove less profitable than unprotected industries, ultimately these industries would be able to stand without the tariff crutch. Hence in due time, the supporters of a protective tariff say, the nation as a whole would be more prosperous as a result of developing industry, although in the interim the total annual production of the nation might be somewhat reduced. While the original purpose of the protective tariff was

to enable certain of the less profitable industries to compete in the domestic labor market and money market for the labor and capital essential to carrying on these enterprises, the result seems to have been to raise appreciably the profits of well established industries far beyond the profits of basic unprotected interests. As the policy has worked out, it tends to depress profits of agriculture through increased costs.

At the close of the war, therefore, owing to conditions stated above, agriculture was overexpanded and weak. City industries were underexpanded and strong, and thus better able to compete with agriculture and other relatively unprotected industries for the necessary labor and capital. Yet at this time the protective tariff was increased, with the effect of sustaining the prices of protected products in the domestic market at a level far above that of the unprotected products. This clearly had the effect of stimulating further maladjustment of price ratios at a time when the opposite policy of reducing the tariff on manufactured products would probably have helped to restore price ratios and maintain on a relatively profitable basis a larger proportion of the agriculture that had been developed.

But the tariff is not the only form of legislation which tended to magnify the maladjustment of price ratios between country and city products. The immigration laws also had the effect of limiting the supply and maintaining the prices of city products. The tariff and immigration legislation together had the effect of weakening the market and thus lowering the prices of American farm products abroad. If the populations of Europe had been free to manufacture products and sell them in the American market, many of them would not have felt the necessity of turning to

agricultural production in the home country, but would have produced more manufactured products to exchange for American farm products. This would not only have provided American farmers with the things they needed to buy at lower prices, but would have stimulated the demand for American farm products abroad and in time reduced the maladjustment of price ratios.

The demand for American farm products in foreign countries was further weakened by the fact that the United States changed during the war from the position of a debtor nation to that of a creditor nation. Where before the war it took practically all of our surplus wheat to pay the interest on our foreign indebtedness, at the present time other countries owe us vast sums, the interest on which must, in the long run, be paid in goods imported into the United States over a high tariff wall, thus weakening the foreign purchasing

power for American farm products.

With these changed conditions in the foreign market, with the increased protective tariff on manufactures, and with the immigration law in effect, American agriculture will need to be dismantled far below that which was in existence in 1914 in order to reestablish the purchasing power of farm products and put the American farmer on the basis of equality with those engaged in other industries. What is sound national policy in this regard is a matter which should be definitely worked out as a basis of national action. If, in the interest of the future welfare of the nation, agriculture should be further dismantled and other industries stimulated by price influencing legislation which will more completely industrialize the nation, then the method of dismantling should be worked out and the costs should be borne by the nation as a whole.

SOME PROBLEMS OF RECREATIONAL LAND

By GEORGE S. WEHRWEIN

TO the pioneers who subdued the wilderness or broke the prairies the idea of setting aside lands for outdoor recreation would no doubt seem amusing and preposterous. Their whole life was out of doors, and there were "wide open spaces" for hunting, fishing, and any other outdoor diversions that could be imagined. But, like all of our "inexhaustible" resources, these spaces are no longer "wide" nor "open." Practically all the land easily accessible to the large masses of population has become private property and has passed into commercial uses. Only as cities or states have set aside areas for the recreation and enjoyment of the people are there public recreational lands. The immense public domain east of the hundredth meridian has disappeared and the few accessible spots of public land, such as old fortifications, military reservations, forgotten bits of public land, are eagerly being sought for park purposes.

Population has become ganglionic in structure. More than half of the people of the United States are classed as urban; that is, they live in towns of 2,500 or more. Farm population, that is, all persons actually living on farms, comprised less than 30% of the total population in 1920. To the urbanized people, few open spaces would be available if cities had not set aside parks, provided playgrounds, bathing beaches, and other public recreational areas. Cities have recognized the fact that the play instincts of man must be given full scope, must be developed, and must not be allowed to degenerate to activities of a lower plane. This is becoming more

important all the time with the tendency to shorten the hours of labor and the working week, thereby increasing the hours of leisure. "Six days shalt thou labor" has been amended by Henry Ford.

Mr. Ford is also partly responsible for the fact that the millions of urban people are not confined behind city walls. The automobile has burst the bonds of the city, whether for business or pleasure. "The whole world of outdoor recreation is at the command of the motorist. One end of the road is at his doorstep; at the other end is the place he desires."¹ The motor car created the demand for hard-surfaced roads, more for pleasure travel than for commercial purposes. Turnpikes and highways, eclipsed for a while by canals, railroads, and waterways, are once more the objects of internal improvement on a more gigantic scale than was ever dreamed of.

It is impossible to estimate the miles traveled by people who "just go for a ride" or motor for the sheer joy of moving and seeing something outside of their own environment. It is estimated that 75% of the sixteen million motor cars in use in the United States in 1924 were used for non-business purposes and that the motorists of this country travel some six billion miles in the enjoyment of vacations and week-end excursions.² The radius of operations of the vacationist has been extended to the very bounds of the nation. Compare him with the hiker or the user of the

¹F. V. Colville, *Proceedings of the National Conference on Outdoor Recreation*, 1924, p. 27.

²*Ibid.*

sainted horse and buggy of the past generation! A Sunday or week-end trip took them 10 to 15 miles away from home; the motorist covers 50 to 200 miles in the same time.

Contrariwise, the same means of travel has widened the sphere of the farmer. He likewise is no longer confined to his neighborhood but goes to the cities to enjoy the recreational advantages offered there or perhaps visits the parks and beauty spots of distant states. The movie, theater, football, baseball, state and county fairs, all have felt the influence of the automobile. In fact, the entire structure of rural institutions, the villages, schools, and churches are in a process of readjustment, as are the cities, in response to the new force.

The Highway in Recreation

The highway has become a means of recreation as well as of commerce. This new relation is a complex one, as those who are studying it can testify.³ The two uses tend to conflict; partisans of each blame the other for obstruction and congestion. In fact, the ever-increasing number of cars is defeating the recreational use. The long, slowly moving line of automobiles leaving or entering a large city on a hot summer day makes motoring anything but a pleasure. The crowded thoroughfares between large cities are no longer country lanes to be enjoyed as a relief from cities but are mere extensions of Michigan Boulevard, Grand Avenue, or Broadway. Billboards, sandwich stands, filling stations, keep the traveler

in touch with his urban environment.

If the highway is to be a feature of beauty to be enjoyed as one motors, some radical changes will have to be made. Travelers in Europe are charmed by the tree-lined roadways. Some of these have fruit and nut trees as well as shade trees. This feature could be copied in America, but it will be a long time before our public can be trusted to respect such property. Still, we are making progress. Many of the roads have trees put there by nature. The problem is merely to prevent their disfigurement or destruction. Telegraph and telephone companies have often been criminal in this respect, butchering the trees to make room for their wires. A flagrant example has been observed in the beautiful Blue Grass region of Kentucky.⁴ Trees are often cut for fuel or lumber, leaving the roadside bare and uninteresting. An encouraging feature is the planting of trees along memorial highways.

Highways ought to be planned from the standpoint of landscape gardening as well as from the standpoint of traffic. There are various kinds of vehicles going at various speeds. It has been suggested that the complete highway will include express and local roadways for automobiles, roads for horse-drawn vehicles, bridle paths, and even a lane for the lone pedestrian, the whole to be landscaped and provided with the necessary service facilities.⁵

We need to develop the appreciation of the highways, or public roads, and their possibilities. They may be very beautiful or they may be unsightly. In this connection especially, attention

³The United States Chamber of Commerce has a committee investigating this subject. See *Proceedings of the National Conference on Outdoor Recreation*, 1926, pp. 111-113.

⁴Tom Wallace, "A State that Abandoned Its

Forests," *American Forestry*, May, 1923, pp. 280-281.

⁵J. Horace MacFarland, *Proceedings of the Second National Conference on State Parks*, 1922, p. 58.

should be given to what we call the margins of the highway, including the modern accessories of travel. Mr. Frank B. Williams, the author of *Law of City Planning and Zoning*, says in his report to the Russell Sage Survey: "It is the margin that gives the rural highway its tone and feeling, and the problem of securing highways rural in character is the problem of obtaining an adequate margin and protecting it from intrusion and defacement. The margin provides land for trees which afford beauty and shade. The margin may also include an easement of setback or building line in the abutting property, and this controls the use of the land and prevents the erection and maintenance of any undesirable structures within a given distance from the road, including the exercise of a desirable control over billboard advertising."

One of the outstanding objects desecrating the beauty of the countryside is the modern billboard. Outdoor advertising has its place, but this place is largely in the cities. Even the residential districts are often zoned against them, and most rural districts should be considered in the same light. Motorists have found the multiplication of billboards a nuisance. Guide signs and markers are often lost in the mess of commercial signs. In other places, billboards obstruct the view and are actually dangerous to traffic, but from the recreationist's point of view they destroy or hide the very scenery for which he came into the country.

Curiously enough, billboards must usually be attacked through a subterfuge. We cannot force their removal because they are hideous, unsightly, or destroy natural beauty. Noises offending the ear or offensive odors can be controlled under the police power, but the eye can still be outraged with rela-

tive impunity. Only on the grounds of danger to traffic or similar reasons can this power be used.⁶ It took a constitutional amendment in Massachusetts to give the courts the power to control billboards solely from the esthetic standpoint.

Recreation on Private Property

The automobile, by making the whole country one large playground, has brought people into new relationships and new contacts. The thousands of tourists bring new problems to the rural districts. The highway on which they are traveling is public property, but the farms and forests on either side are not. On the whole, there is the feeling that, although a city lawn is private property from which every one can be excluded, the farms and forests are still the property of everybody. As Dr. Wilson Compton puts it: "There is something in all of us that revolts at the thought that it may be possible for a united ownership of the surface of the world to put up a collective 'Keep off the grass' sign. We are all just sociable enough, from our racial heredity of the ancient commons of Britain, to feel that somehow the world does owe us a right to commune with nature, even though we concede readily enough that it does not owe us a living." He points out that people generally assume the right to the free run of uncultivated lands, and that the owner can maintain his property rights as against the common rights only when he has duly "posted" his land by putting up suitable placards against trespassing.⁷

⁶ See, for example, *Cusack Co. v. City of Chicago*, 242 U. S. 526 (1916), upholding a city ordinance regulating the erection of billboards in residential districts, on grounds of safety, health, and morals.

⁷ *Proceedings of the National Conference on Outdoor Recreation*, 1926, p. 50.

The same state of mind prevails in connection with all natural things, namely, that there is a superabundance of trees, flowers, and game and that these are the property of those who wish to take them. But there is no longer a superabundance of wild life. Certain species of wild plants are becoming extinct. Trailing arbutus, holly, lady's slipper, columbine, are among those in danger of extermination. The fact that we have wild-flower preservation societies is eloquent testimony of this fact. Laws are being passed to prevent the indiscriminate picking of flowers. Maryland imposes a fine of \$25 and imprisonment on anyone who enters the land of another to pick flowers or take away trees without the written permission of the landowner, thus putting both parties under obligations. In other places, the public is being educated against the indiscriminate picking of wild flowers, flowering shrubs, and trees. Around Washington, D. C., posters have been put up urging automobilists not to pick the dogwood, and the results are gratifying. Education will probably bring better results than merely "passing another law."

The same attitude prevails toward trees. Colorado spruce has been stolen from private grounds and used for Christmas decorations. Much idle land could be put to profitable use growing Christmas trees if only the public could be taught that trees are as much private property as is the automobile that is used to steal them. Even apple trees were held as quasi-public property by Pennsylvania courts until a law was passed defining the farmer's rights in his trees and fruit. Farm and garden crops, poultry, and even gasoline disappear from the farmer's yard. No wonder farmers are tightening their property rights and old-fashioned vigil-

lance committees have been revived in Iowa and Illinois!

On the whole, the owners of farm and forest lands do not object to the rational use of uncultivated lands by picnickers, campers and sportsmen, but the proverbial hospitality of rural people comes to an end when the recreationists fail to consider themselves as guests and to behave as such. Various organizations are trying to impress upon their members the "courtesies of the camp"—namely, the removal of all paper and trash, the putting out of fires, the respect for nature, wild life, and property in general. Foresters are seriously objecting to the use of the forests by campers in some states because of the fire hazard and the neglect of the courtesies of the camp.

Considerable progress is being made in providing publicly for the needs of tourists, thereby relieving the private property owner of this burden. Municipal camp sites, the camp sites of Pennsylvania, public forests, parks, and beaches are examples. A large proportion of the recreational use of highways is not only for the sake of motoring but for the purpose of reaching some recreational area. The more accessible such areas are, the less will be the congestion on the roadways. It has been suggested that there should be a state park or other recreational area at less than every hundred miles.⁸

Property Problem of Hunting and Fishing

Hunting and fishing are sports that echo our frontier heritage and that continue to appeal to millions of Americans in city and country. It is estimated that 10 million men are disciples of

⁸ John Ihlder, *Proceedings of the National Conference on Outdoor Recreation*, 1926, p. 112.

Isaak Walton, and at least 5½ million men emulate Nimrod every year. Since 1913, the number of hunting licenses issued in Pennsylvania increased 64%, contrasted with a 14% increase in the population. If this type of recreation is to become a permanent one, game and fish must not only be preserved but increased. To this end there must be greater control over hunters, more rigid game laws, and shorter hunting seasons. But, what is more important, land areas must be set aside for the breeding and feeding of game. Civilization is the enemy of wild life. Lumbering destroys the homes of game and birds, and fires in forests and cut-over lands complete the work of extermination. Agriculture eliminates the wilderness completely and the wild life with it. The dredging machine, the ax, and the plow have been more effective in destroying game than the gun.⁹

Industry and cities have added their bit in various ways, but especially through the pollution of waters by urban and factory wastes. It is claimed that 85% of the streams of the United States are polluted and that this percentage is increasing. In New York and Pennsylvania there are streams without any living organisms whatsoever. Oil from steamers has formed a film over the waters along the shores of New Jersey which keeps out the oxygen and destroys the oyster beds and fish. Birds have been seen with their feathers so smeared with oil that they were unable to rise from the sea and fell an easy victim to hunters. Bathing beaches are being polluted along streams and lakes, and even along the Great Lakes and the ocean, by city wastes and oil. Along New Jersey the

sand itself is soaked with oil. "It is impossible to take a bath in the surf without being compelled to bathe in gasoline afterward to remove the torrid character that has been picked up in the water," said Dr. Henry Ward.¹⁰

However, pollution is controllable, and progress is being made in this respect. It is said that the Thames River is cleaner than any great American river, notwithstanding the congestion of population on its banks. Pennsylvania is among the foremost states in controlling pollution, and the Isaak Walton League is active in awakening public opinion in this direction.

Hunting and fishing are recreations of a public nature, but there are but few acres of *public land* left. Of the 480 million acres of forested land, only 90 million acres are publicly owned; the remainder is in the possession of lumber companies or farmers. The farms of the United States contain about 150 million acres of timberland which furnish homes for small game. How much hunting and fishing will be permitted on private grounds depends entirely upon how strictly the owners hold their property. "Free hunting" is still a part of our national spirit. Dr. Compton quotes William Elliott as saying, in his *Carolina Sports*, written in the first part of the last century: "The right to hunt wild animals is held by the great body of people, whether landlords or otherwise, as one of their franchises, which they will indulge in at discretion; and to all limitations on which, they submit with the worst possible grace. The *ferae naturae* are, in their code, the property of him who can take them, irrespective of any conflicting right in the owner of the soil."¹¹

⁹ W. C. Adams, *Proceedings of the National Conference on Outdoor Recreation*, 1924, p. 35.

¹⁰ *Proceedings of the National Conference on*

Outdoor Recreation, 1924, p. 39; 1926, pp. 114-118.

¹¹ *Proceedings of the National Conference on Outdoor Recreation*, 1926, pp. 50-51.

To such absurd lengths is this doctrine carried in the South that timberland owners are powerless to prevent the burning of the grass by those who graze their cattle and hogs in their forests. Theoretically, the owner can stop it; practically, no one "will invite the hostility of a community of bold and sensitive men."

Property in Game

The question of property in game is a complex one. Game is not the property of the farmer or the lumberman on whose land it may be found. Strictly speaking, fish and game are the property of the state, but the state usually does not make actual property out of them; hence they are really only potential property, or *qualified* property, over which the state exercises control. In the Willow River Club case it was stated that "fish belong to the state for the benefit of the people," and the club could not prevent outsiders from taking them.¹²

The state, by granting a hunting license, in a measure gives its permission to the hunter to take the publicly owned game. The landowner is placed in a peculiar position by this state of affairs. The rabbits that grow fat in his clover field are not his property. If they run into a neighbor's field he has no right to claim them as he can his domestic animals. He therefore has little interest in protecting or preserving game, especially if he finds that some outside hunter claims the right of trespass and the right to take the game on the farm.¹³

¹² Ely, *Property and Contract*, Vol. I, p. 99.

¹³ "In New York State, for example, a man with a state hunting license can go on any man's farm and shoot the birds. If the landowner objects, he can put up trespass notices, but this need not keep the gamer away. The only redress the landowner

A contrast to the American idea of "free hunting" and public property in game is the Old World conception of game as private property. In this conception, game belongs to the landowner, and the poacher is usually treated more severely than the thief who steals a pig or a chicken. As a result, game is as plentiful in England and Scotland as it was 500 years ago. However, the European system of private property in game will hardly appeal to Americans. In this connection it is interesting to note the law recently passed in Wisconsin making fur farming possible on the marshes of that state by the appropriation of the wild animals according to a plan outlined by law. Public or qualified property thereby is reduced to private property.

Another strange angle to this problem is the fact that the owner may lease the shooting privileges on his land, thereby receiving monetary gain out of the publicly owned birds and animals. On the other hand, this gives the owner an incentive to protect the game and assist in its propagation. This is of peculiar significance in private forestry. As soon as individuals engage in timber growing, they will necessarily restrict the rights of the general public in forests, because of the danger of fire and the interference with forest operations. But the owner may also find it profitable to lease the resort and hunting privileges and thereby receive an additional income from his land. In this way hunting and fishing will tend to become the exclusive privilege of those who own or lease land for "sporting purposes."

has in such a case is to sue the gunner in the civil courts for any damage he may have done to the property, and if he receives a verdict of six cents he is fortunate." Gilbert Pearson, *Proceedings of the National Conference on Outdoor Recreation*, 1924, p. 97.

However, every restriction of this kind will curtail the right of the public to "free hunting" and will be looked upon as an unfriendly act. It is doubtful if public opinion will permit any large extension of private game preserves and exclusive hunting clubs.

A second line of conflict lies along the edge of land that is "marginal" for agriculture. Marshes, swamps, lakes, and forests are not only parts of our native landscape but they are the homes and breeding places of game and wild fowl, particularly of the migratory birds. Continuous and extensive drainage has reduced these areas so much that the migratory birds are deprived of their homes and food. The sportsman is anxious to have these areas left in their state of nature, but the landowners reply that, since they are being taxed on this property, they must put it to its most productive use, which is not to provide free hunting for city sportsmen.

In so far as these are the facts, they are correct. However, in so far as drainage is being promoted in order to bring new lands into farms there is another side to the question. It has been estimated that it will take 35 years to bring the land already drained into cultivation at the present rate of utilization. In the face of the present depression in agriculture, it is certainly unwise to add more farms by reclamation of any kind of land not already in farms.

Furthermore, too many drainage projects have proved valueless after the job was finished. In some cases the soil proved to be worthless; in others, the costs of reclamation were far beyond what the income could bear. Oregon is an example. The lakes of eastern Oregon were once one of the greatest wild-fowl nurseries in the country. It is reported that 120 tons of

ducks were shipped into San Francisco in one day from the Lower Klamath. In spite of adverse recommendations, a drainage district was organized in 1917 and the area drained. Yet not more than 5,000 out of the 85,000 acres have ever been cultivated.¹⁴ Other examples might be cited.

More Public Property in Recreational Land

If the rights of the public in hunting and fishing, as well as to other forms of recreation, are to be preserved, several things are necessary. First of all, we must keep open the rights on private lands by generous cooperation between the landowners and sportsmen. It is noteworthy that the Isaak Walton League is impressing this upon its members. Secondly, the rights to public lands and waters must be preserved. The recent decision of the Michigan Supreme Court in the Collins-Gerhardt trespass case, preserving the right of the public to fish in navigable waters, is a case in point. Massachusetts has revived an old Colonial ordinance giving the public access "through any man's property so they trespass not upon any man's corn or meadow." Court decisions and legislation have made this the modern law of the state, and the "great ponds" are being restored to such public uses "as the progress of civilization and the increasing wants of the community properly demand."¹⁵

Lastly, more land must be made public property and devoted to recreational use. The vexatious Winneskiek Bottom

¹⁴ W. L. Finley, *Proceedings of the National Conference on Outdoor Recreation*, 1926, pp. 71-72.

¹⁵ R. H. Torrey, "State Parks," *Proceedings of the National Conference on State Parks, Washington*, 1926, p. 54.

case was settled by the purchase of the land in dispute and placing it under the control of the federal government, and so the private landowner was relieved of his taxes and the burden of supplying fish and game to sportsmen. Various states and the federal government have established game refuges and preserves where game is protected and from which it may roam into lands where hunting is permitted. In Ohio, farm lands amounting to 100,000 acres have been designated as game preserves, and the farmers are cooperating with the game wardens in protecting wild life. Farmers are eager to lease their lands in this way because it protects them against trespassing.

More of the water frontage must be secured for the public. It is claimed that out of the 159 miles of beach suitable for bathing in California only 29 miles are owned by the public. The craze for lake property is rapidly making access to public waters difficult and in some places impossible. Since navigable lakes are public waters, all that is needed is a few rods of public highway touching the lake in order to give the public access to it. In 1923, a law was passed in Wisconsin requiring the subdividers of land in non-urban territory to extend highways down to the low-water mark of the lake at intervals of not more than one-half mile. In this way the public is assured access to lakes. In some countries the banks of streams and lakes are public property, and more of the shore lands of America should belong to the public.

National Parks, Monuments, and State Parks

Passing from recreational land devoted to a narrow or specific use, such as hunting, fishing, or bathing, we will

note briefly another kind of land. These are the national and state parks. National parks are "areas of some magnitude distinguished by scenic attractions and natural wonders and beauties which are distinctly national in interest," while a state park preserves areas of outstanding state importance. As such, they appeal to the highest recreational instincts in man, which make all other uses, whether recreational or commercial, secondary. Other kinds of recreational land of wide interest are the national monuments, which preserve some natural wonder or commemorate some historic event or person of national importance; the wilderness discussed by Mr. Aldo Leopold in the October, 1925, number of the *Journal of Land and Public Utility Economics*; land for scientific purposes; and the national, state, and municipal forests.

There are many conflicting theories as to the proper place of all of these different kinds of land in a comprehensive land plan, and as to the functions and duties of federal, state, and local governments in providing for these various types of park and forest land. The problem of coordination is not yet worked out. It is important that this be done very soon. We cannot rely upon economic law to provide the future generations with recreational land. It may be that high prices of lumber will induce private owners to reforest, but we shall probably experience a timber famine first. No such economic incentive will bring forth national or state parks. These must be selected with a vision of what 200 million people will need in the future. City planners have established a ratio of park area to population. Is it possible to agree upon a ratio of national and state park area to the population of the nation as a whole?

The location of these parks is another problem. National parks, if selected on the basis of containing scenic wonders of national importance, must obviously be located where nature has put such wonders. That most of them are in the Far West and away from the centers of population is not the fault of those who selected the areas but the will of the Creator. However, every state has beautiful areas which can be dedicated for state park purposes to supplement the national parks.

The problem is to select them now before the reason for their selection has disappeared. City parks and playgrounds can be established on sites once occupied by buildings, but state and national parks, forests, and wilderness areas cannot. These must be set aside before civilization has touched them. It is therefore wise to select large areas long before they are needed, because we must plan for the future and not the present. This will entail some burdens, but if there are ripening costs in recreational land as there are in other kinds of land, we must be prepared to bear them.

Where a particular area suited to recreational uses is also useful and desired for other forms of utilization, the tendency is for the value of that area to increase. Hence the longer purchase by the public is postponed, the more expensive it will become. The Indiana dunes serve as an example.

Fortunately, land appropriate for recreational purposes of state or national interest has few competing uses. Land noted for scenery is rarely suitable for agriculture, and forestry and recreation can often be combined on a given area of land. In the last five years the United States has lost over 75,000 farms. Throughout the East,

farm land is reverting to timber and brush at the rate of a million acres a year. These are indications that there is but little pressure of population upon land in general and much less upon land especially suitable for forest and recreational purposes. Locally, attempts are being made to encroach upon this or that park or to extend utilitarian rights in forest lands. This must not be permitted. The use and enjoyment by all the people is more important than the profits of a few. If this were not so, public park systems, whether urban, state, or national, would have to fall.

Finally, in making a plea for recreational land, if the spiritual and educational values fail to make an impression, one can always fall back on "money value." Recreation is one of the biggest "business propositions" in America. More time and money are spent on luxuries, movies, theaters, games, pleasure riding, than on food and clothing. The gasoline needed to drive motor cars six billion miles of pleasure travel is just one item. A few years ago the Denver Chamber of Commerce estimated that the tourist traffic brought into Colorado \$44,000,000 annually. These dollars are just as valuable as those received for the products of farms and mines. New England is being rejuvenated by the tourist and summer resort public. The farmers have adjusted their agriculture to the new situation and have established wayside markets and dairies. It is one of the few sections where the area of farm land and the number of farms increased during the last five years. The Lake States are beginning to realize what a financial asset their scenery is. The old notion of converting all land into farms is giving way. The thousands of lakes, the rocky lands, the forests, are attracting the dwellers of

the cities that cluster at the foot of the lakes and the inhabitants of the flat but fertile prairies. The Northern Peninsula of Michigan is anxious to reforest some 15 million acres of idle lands, not only to revive the once profitable lumber industry but to attract tourists, hunters, and fishermen. Michigan estimates the value of her tourist travel of the past year at \$200,000,000, Wisconsin at \$90,000,000. Florida, California, and Canada have capitalized climate, scenery, and recreation to a still greater extent. In 1925 it was predicted that the tourists of that year would be worth \$2,500,000,000 to the thousand and one communities located along the highways and near the playgrounds of the nation.

On the other hand, the monetary and playground features of recreation are becoming so evident that there is danger that the higher forms of enjoyment

will be sacrificed for the dollar. Public sentiment is favoring the establishment of national parks in every state, whether there are outstanding natural features or not. Everywhere, communities are endeavoring to attract tourists and are clamoring for parks to be donated by a liberal federal government. "Uncle Sam is rich enough to give us all a park" seems to be the modern version of the old land policy. Under such conditions it is difficult to keep to a high standard for national parks. Even at the present time, there are areas called by that name which are not of the high standard set by Yellowstone or Yosemite. This does not mean that there is no place for small parks or recreation spots adapted to the needs of tourists, but that these are not of *national* importance. These belong under the jurisdiction of states and should be provided at state expense.

THE RISE AND DECLINE OF MUNICIPAL OWNERSHIP IN THE ELECTRIC LIGHT AND POWER INDUSTRY OF WISCONSIN

By HERBERT B. DORAU

MUNICIPAL ownership has always been an important aspect of the organized provision of central electric service in the United States. In no other service industry conducted on a commercial basis, except the water utility, has the development of public ownership gone further. Over 80% of the central water supply systems are publicly owned and over 40% of the central electric light and power establishments are municipally owned. Municipal provision of electric service has been an important factor since the very beginning of the industry. Although as early as 1900 its disappearance or at least decline was anticipated and predicted, yet the number of municipal establishments has increased rapidly and steadily. The last census of central electric light and power stations reported 2,581 municipally owned establishments, an increase of 263 over the number reported in 1917. Whereas in 1917, 35.4% of all central stations were municipally owned, in 1922 40.6% were reported as municipal.¹

However, the number of establishments is only one way of setting forth the importance of the publicly owned portion of this industry. By itself this method is inadequate and misleading. The average commercial establishment is valued at about ten times the average value of the plant and equipment of the municipal establishments. The publicly owned portion of the industry repre-

sents only about 5% of the total value of plant and equipment, 8% of total revenue,² 5% of the output distributed; but it serves about 13% of the customers. Furthermore, when measured in these ways, the importance of municipally owned relative to that of privately owned establishments has remained about the same for the United States as a whole from 1902 to 1922, gaining slightly in the proportion of total investment, losing slightly in the proportion of all customers served, and gaining slightly in the proportion of total revenue received.

More recently the economic and technological bases of the electric light and power industry have been undergoing violent changes. These innovations appear to be operating to the disadvantage of the municipally owned portion of the industry, as they are to the disadvantage of all small plants whether publicly or privately owned. Thus the future of municipal ownership is again uncertain. In response to these changes in the basic character and methods of providing electric service, the municipal establishments have altered in both character and extent. The purpose of this short study is to

¹ The number of private establishments actually declined on account of consolidations. This tended to accentuate the impression of an increase in municipal plants when expressed as a percentage of the total number.

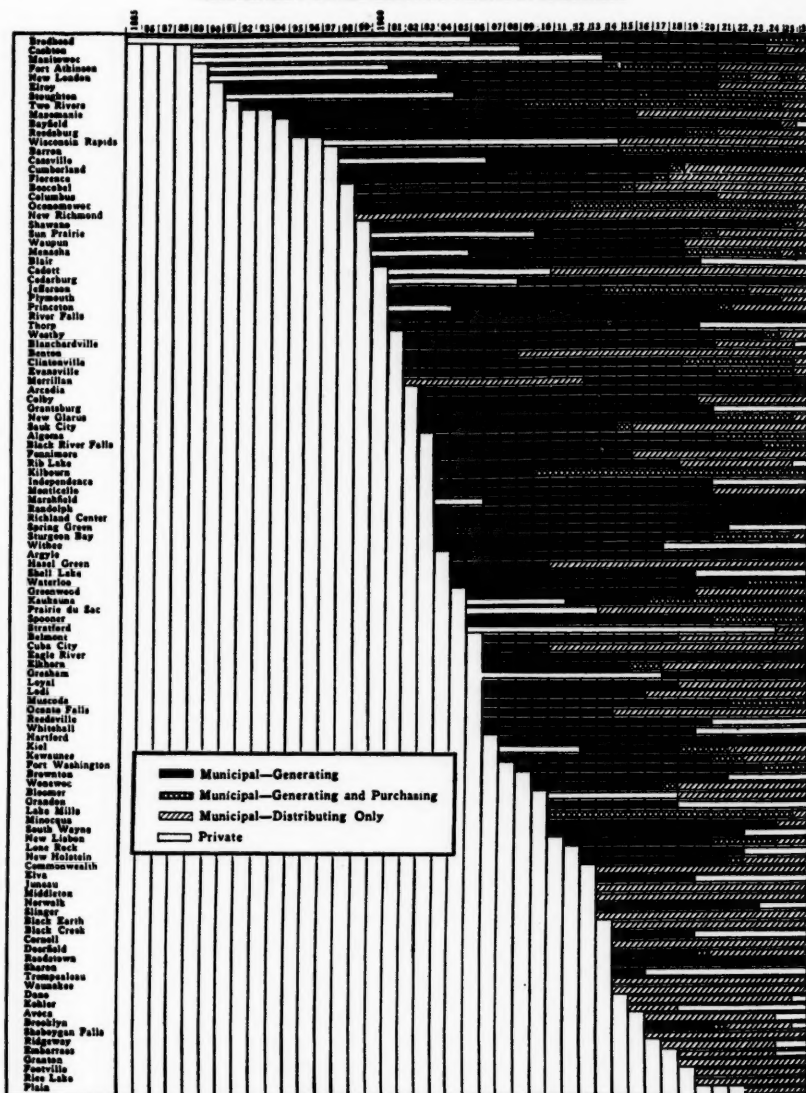
² A considerable part of the output is purchased, thus increasing revenue without corresponding increases in the investment.

analyze in some detail a few aspects of these developments and only, for the present, as they manifest themselves in the one state of Wisconsin.

Municipally owned electric light and power establishments of Wisconsin afford an excellent opportunity for such a case study. Two circumstances espe-

Chart I

MUNICIPALLY OWNED ELECTRIC PLANTS IN WISCONSIN



cially recommend the developments in Wisconsin for special study. First, progressivism has long been associated with the state of mind of the public and certainly there, if anywhere, municipal ownership should still be a matter of principle rather than a matter of industrial technology. But a second circumstance was far more important than the traditional liberalism of the state. In no other state, unless it be Massachusetts, are the records with respect to municipal plants so generally adequate and complete as to make readily possible a comparative historical survey of the changing character and extent of municipal ownership in the electric light and power industry.

Life History of Municipal Plants in Wisconsin

The records for Wisconsin show that between the years 1890 and 1927 there have been at one time or another 115 different municipally owned establishments engaged in rendering commercial electric service.³ The life history of each of these enterprises in terms of the degree of self-sufficiency of the establishment, the precedence of private ownership, as well as the change from public to private ownership is presented in Chart I. This may be viewed either as a record or life history of each instance or as a composite picture of the changing character of municipal ownership as a whole in that state. The life bar for each community starts at the time when central electric service was first re-

ported. The years during which a self-sufficient municipal plant existed are shown by the solid black portion of the bar. When the municipal plant began to depend upon private power companies for part of the current distributed, usually peak-load demand or demand during the low water season, the double cross hatch is used to show the years during which this transitional type of cooperative arrangement existed. When finally it became advantageous for the municipal station to purchase its entire output from a power company, this change to mere distribution is indicated by a single cross hatch; and when, as in the case of an increasing number of plants in recent years, a private company bought or resumed complete service, the life history bar becomes an open white section.⁴ These are the various stages in the evolution of municipal plants which the records disclose.

If these data be viewed as a composite picture of the character and extent of municipal ownership in Wisconsin, the general change which has taken place since 1918 stands out clearly. Beginning in 1914 and continuing through 1926, the self-sufficient municipal plant which generates all the current and distributes it has been rapidly disappearing. Its place is being taken by plants either wholly or partly dependent upon private concerns for their supply of electricity; the tendency is markedly away from the self-sufficient municipal plant and in the direction of the entirely dependent establishment.

³ This excludes municipal street lighting systems when they render no commercial service. Of these there have been a few from time to time and more recently three of record, Milwaukee, Shorewood, and Wausau. The McGraw Central Station Directory also lists as municipal, plants in Birnamwood, 1909-1914, Bruce, 1909-1919, and Eastman, 1921-1925. There are no state reports

naming these places. Milton Junction bought its plant, holding it only until resale could be made. It has not been considered a municipal plant.

⁴ The principal sources of the information basic to this study are the records of the Railroad Commission of Wisconsin. These have been checked as far as possible. Their accuracy is relied upon, but cannot be guaranteed.

*The Establishment of Municipal
Electric Plants*

From 1890 to 1900, municipally owned plants were established very slowly, so that by 1900 there were only 15 such enterprises in the state (Table I). From 1900 to 1910, 59 more were

TABLE I. THE NUMBER OF MUNICIPAL ESTABLISHMENTS ORIGINATING, AND THE NUMBER OF ESTABLISHMENTS CHANGING, FROM MUNICIPAL TO PRIVATE OWNERSHIP IN WISCONSIN;
BY YEARS; 1891-1926*

Year	Total Number of Municipal Establishments	Number of Municipal Establishments Originating Each Year	Number of Establishments Changing From Municipal to Private Ownership by Years
1891	1	1	..
1892	2	1	..
1893	2	..	..
1894	3	1	..
1895	5	2	..
1896	5	..	..
1897	5	..	..
1898	8	3	..
1899	12	4	..
1900	15	3	..
1901	20	5	..
1902	26	6	..
1903	31	5	..
1904	44	13	..
1905	50	6	..
1906	54	4	..
1907	66	12	..
1908	68	2	..
1909	71	3	..
1910	74	3	..
1911	79	5	..
1912	81	2	..
1913	84	3	..
1914	92	8	..
1915	101	9	..
1916	103	2	..
1917	105	3	1
1918	106	2	1
1919	107	3	2
1920	103	2	6
1921	100	..	3
1922	98	..	2
1923	97	1	2
1924	96	..	1
1925	94	1	3
1926	89	..	5

* Compiled from the reports of municipal electric light and power stations to the Railroad Commission of Wisconsin. No reports were made for the municipal street lighting systems of Milwaukee, Shorewood and Wausau. No state reports were made for the following towns recorded in the McGraw Central Station Directory as municipal for the period indicated: Birnamwood, 1909-1914; Bruce, 1909-1919; Eastman, 1921-1925. Milton Junction bought its plant and held it for a short period of time for sale to private company.

established, making a total of 74. After 1911, the rate of increase slowed up perceptibly, except that from 1913 to 1915 another rapid increase of short duration added 20 municipally owned establishments to the list. The maximum number was reached in 1919 with a total of 107. Since that date, 4 more communities have been added, but the losses by sale to private owners, beginning in 1917, made such heavy inroads that the total declined to 89 for the year 1926 (Table I).

One aspect of municipal ownership in the electric industry that is often overlooked is that in a majority of instances service began in these communities under municipal auspices because no other agency was ready or willing to render the service. The conditions in Wisconsin well illustrate this fact. Here, out of 115 instances of municipal ownership, only 20 originated as private undertakings, while 95 were initiated as municipal enterprises (Table II). Moreover, of these 95 instances, 74 were initially self-sufficient generating stations producing all the current needed and distributed. The other 21 establishments beginning operations under municipal auspices include one instance of a plant generating part and purchasing part of its output, and 20 which purchased all of their supply from the beginning of electric service in their communities. The municipal plants which began merely as distributing stations (20 in all) are almost all of more recent origin, only two such instances being recorded before 1914. Of 25 establishments originating as municipal undertakings since 1913, 18 began as distributing stations purchasing their entire output, the remaining 7 generating their entire output. Of these 25 establishments, 10 had passed into private ownership by 1926.

Municipal Plants Which Originated as Private Undertakings

In 20 Wisconsin communities, electric service originated under private auspices and then was assumed as a public function (Table II). It is interesting to note that none of these communities

have returned to private ownership of their electric establishments. In 15 of these 20 communities, the change was from private to public plants generating the entire output, while in five instances the change was to municipal establishments which purchased their entire supply. Five plants out of these

TABLE II. ANALYSIS OF CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN WISCONSIN, 1891-1926

Total Number of Municipal Establishments in Wisconsin, 1891-1926.....	115								
I. Number Originating as Private Establishments.....	20								
A. Number Changing from Private to Municipal Establishments Generating All of Output.....	15								
1. Number continuing to generate all of output.....			5						
2. Number changing from generating all of output.....			10						
a) to generating none of output.....				1					
b) to generating part of output.....				9					
(1) Number continuing to generate part of output.....					2				
(2) Number changing from generating part of output.....					7				
(a) to generating none of output.....								4	
(b) to generating none to generating part to generating none of output.....									1
(c) to generating part to generating all to generating part of output.....									1
(d) to generating part to generating none to generating part of output.....									1
B. Number Changing from Private to Municipal Establishments Generating None of Output.....	5								
II. Number Originating as Municipal Establishments.....	95								
A. Number Originating as Municipal Establishments Generating All of Output.....	74								
1. Number continuing to generate all of output.....			8						
2. Number changing from generating all of output.....			66						
a) to private establishments.....				17					
b) to generating none of output.....				20					
(1) Number continuing to generate none of output.....					17				
(2) Number changing from generating none of output to private establishment.....						3			
c) to generating part of output.....					29				
(1) Number continuing to generate part of output.....						8			
(2) Number changing from generating part of output.....						21			
(a) to generating none of output.....							20		
(b) to generating none of output to private establishments.....								1	
B. Number Originating as Municipal Establishments Generating Part of Output.....	1								
1. Number changing from generating part to generating none of output.....				1					
C. Number Originating as Municipal Establishments Generating None of Output.....	20								
1. Number continuing to generate none of output.....			14						
2. Number changing from generating none of output.....			6						
a) to generating all of output.....				1					
b) to private establishment.....					5				

15 continued throughout the period to be self-sufficient plants, generating their entire output, while 10 changed to purchasing part of their output. Of these

10 establishments, one changed to generating none and 9 to part of their output. Further analysis of these changes is presented in Table II.

TABLE III. ANALYSIS OF EXTENT AND CHANGING CHARACTER OF MUNICIPAL OWNERSHIP OF ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN WISCONSIN BY YEARS, 1885-1926

	TOTAL NUMBER OF MUN- ICIPAL ESTAB- LISHMENTS IN EXIST- ENCE IN EACH YEAR	NUMBER OF MUNICIPAL ESTABLISHMENTS ORIGINATING AS:				NUMBER OF ESTABLISHMENTS CHANGING OWNERSHIP FROM		ACTUAL NET INCREASE IN NUMBER OF MUNI- CIPAL ESTAB- LISHMENTS	NUMBER OF ESTABLISHMENTS (MUNICIPAL) CHANGING FROM			
		Private Estab- lish- ments	Municipal Establishments				Private to Public		Public to Private	Generat- ing All to Gen- erating Part	Generat- ing All to Gen- erating None	Generat- ing Part to Gen- erating None
			Total Num- ber	Gen- erating All of Output	Gen- erating Part	Gen- erating None						
1885		I										
1886		.....									
1887		.....									
1888		.....									
1889		2										
1890		2										
1891	I	I	I	I				I				
1892	2	.....	I	I				I				
1893	2	.....						.....
1894	3	.....	I	I				I				
1895	5	.....	2	2				2				
1896	5	.....						.....
1897	5	I										
1898	8	I	3	3				3				
1899	12	.....	4	3		I		4				
1900	15	2	3	3		.....		3				
1901	20	3	4	4		.....	I	5				
1902	26	.....	6	5		I	.....	6				
1903	31	.....	5	5		.....	.....	5				
1904	44	I	12	12		.....	I	13				
1905	50	.....	4	4		.....	2	6				
1906	54	3	2	2		.....	2	4				
1907	66	I	10	10		.....	2	12				
1908	68	I	2	2		.....	.....	2				
1909	71	.....	I	I		.....	2	3	I	I		
1910	74	.....	2	2		.....	I	3	I	.....	
1911	79	I	4	3	I	.....	I	5	.....	2		
1912	81	.....	I	I		.....	I	2	I	.....	
1913	84	.....	2	2		.....	I	3	.....	.....	*
1914	92	.....	6	2		4	2	8	2	.....	
1915	101	.....	8	4		4	I	9	3	I		
1916	103	.....	2	.....		2	.....	2	2	2		2
1917	105	.....	3	I		2	.....	3	2	I		†
1918	106	.....	I			I	I	2	2	.....		2
1919	107	.....	2			2	I	3	5	4		2
1920	103	.....	2			2	.....	6	2	2	.....
1921	100	.....	.....			.....	.....	3	10	4		4
1922	98	.....	.....			.....	.....	2	2	.....		3
1923	97	.....	I			I	.....	I	I	.....		4
1924	96	.....	.....			.....	.....	I	4	I		
1925	94	.....	.....			.....	I	I	I	3		4†
1926	89	.....	.....			.....	.....	5	.....	.....		8‡

* One establishment changed from generating none to generating all.

† One establishment changed from generating part to generating all.

‡ One establishment changed from generating none to generating part.

Municipal Plants Which Originated as Public Undertakings

Of the 95 instances of establishments which originated as public undertakings, 74 began as self-sufficient plants, but only 8 of these continued throughout the period to generate their entire out-

TABLE IV. NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER ESTABLISHMENTS IN WISCONSIN GENERATING ALL, PART, OR NONE OF CURRENT DISTRIBUTED, BY YEARS, 1891-1926*

Year	Total Number of Establishments	Number Generating All of Output	Number Generating Part	Number Generating None
1891	1	1	..	..
1892	2	2	..	..
1893	2	2	..	..
1894	3	3	..	..
1895	5	5	..	..
1896	5	5	..	..
1897	5	5	..	..
1898	8	8	..	..
1899	12	11	..	1
1900	15	14	..	1
1901	20	19	..	1
1902	26	24	..	2
1903	31	29	..	2
1904	44	42	..	2
1905	50	48	..	2
1906	54	52	..	2
1907	66	64	..	2
1908	68	66	..	2
1909	71	67	1	3
1910	74	69	2	3
1911	79	70	3	6
1912	81	71	4	6
1913	84	75	4	5
1914	92	75	6	11
1915	101	75	9	17
1916	103	71	9	23
1917	105	69	10	26
1918	106	67	10	29
1919	107	57	13	37
1920	103	47	15	41
1921	100	30	21	49
1922	98	26	20	52
1923	97	23	17	57
1924	96	18	21	57
1925	94	14	19	61
1926	89	14	12	63

*Compiled from the reports of municipal electric light and power stations to the Railroad Commission of Wisconsin. No reports were made for the municipal street lighting systems of Milwaukee, Shorewood, and Wausau. No state reports were made for the following towns recorded in the McGraw Central Station Directory as municipal for the period indicated: Birnamwood, 1909-1914; Bruce, 1909-1919; Eastman, 1921-1925. Milton Junction bought its plant and held it for a short period of time for sale to private company.

put. Of the 66 which did not maintain self-sufficiency, 17 changed to private ownership, 20 to generating none of their output (of which 3 subsequently changed to private ownership), and 29 shifted to purchasing part of their supply. Only 8 of these 29 plants which changed from generating all to purchasing part of their supply persisted in generating even part of their output to the end of the period, while 20 turned ultimately to purchasing their entire supply, and one of this group changed to private ownership.

Reference to Table II, where these changes are presented in tabular form, will make this transition easier to follow. One unusual case is recorded of a municipal plant originating as an establishment generating part of its output. This establishment subsequently purchased all its supply. In the later years the tendency for municipal establishments to originate as distribution systems was noted. Of 20 such instances, 14 continued to the end of the period as purchasers, while one changed to generating all its output, a most unusual reversal of order, and five were transferred to private ownership (Table II). The relatively greater resistance to change in the group of 20 establishments originating as private stations is also worth noting and relates to the fact that the transition to the various stages in the evolution and finally to private ownership is more rapid and frequent in the communities in which municipal ownership is of more recent origin. In general, these places are also somewhat smaller in size.

The Year-by-Year Changes in the Character of Municipal Ownership

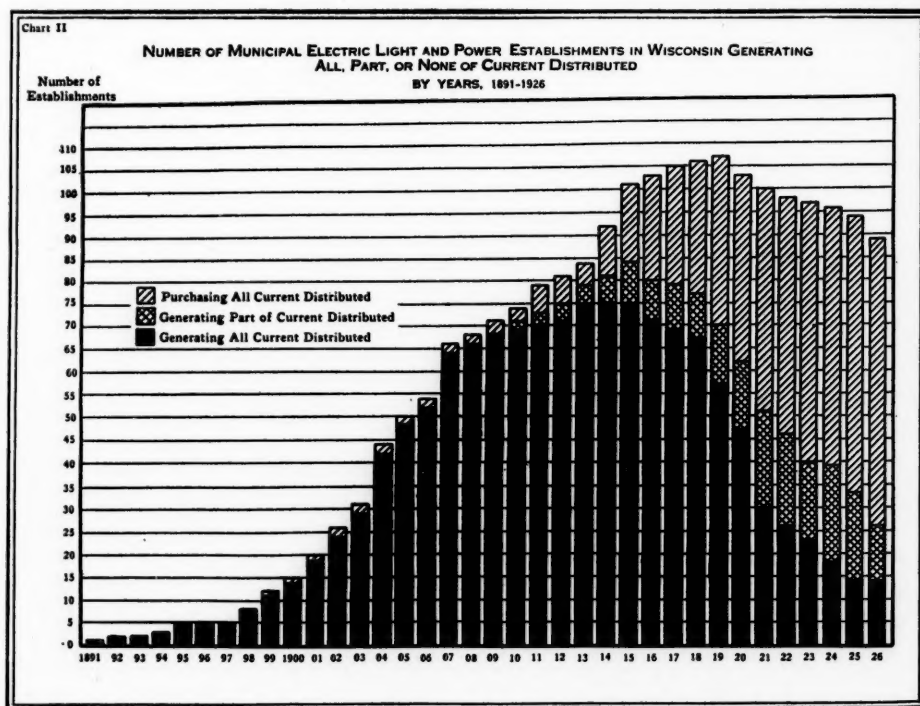
In Table III the changes in the status of Wisconsin electric light and power

establishments which were at one time or another municipally owned are distributed historically according to the year in which the status or character of electric service altered. Thus the movements may be followed more in detail. The year-by-year changes in the number of establishments generating their total output, generating part of their supply, and purchasing their entire output are summarized in Table IV. The graphic representation of these facts in Chart II makes the movement even more striking and apparent. The era of the self-sufficing establishment began in 1891, reached its peak in 1913 to 1915, and then declined precipitously until in 1926 only 14 such plants, generating their total output, remained in existence.

In 1909 a second stage in the evolution began, namely that in which the municipal plant purchased part of its

current and generated the rest. These mixed plants were fewer in number than either those generating all or purchasing all their supply but reference to Chart I or Table II will show that it is a class with a changing content. At one time or another, 39 of the 115 municipal establishments having existed in the period from 1891 to 1926 went through this evolutionary stage. The largest number existent at any time was in 1921 and 1924, when 21 plants were of this character.

The most rapid change, as will be seen by reference to Chart II, has taken place in the number of municipal establishments which have become mere distributing stations. This movement started early, but the instances were few between 1900 and 1910. The rapid advance occurred since 1913, so that by 1926, 74 of the total of 115 instances



are or have been municipal establishments generating no part of their output. In 1926, 63 of the remaining 89 municipal establishments in Wisconsin were purchasing all of their requirements.

Of these 63 establishments which were purchasing their total requirements in 1926, 19 had always, as municipal plants, bought their total supply, 18 had formerly generated all their output, 25 had once generated all and later purchased part of their output, while only one originated as a plant purchasing part of its supply.

From Public to Private Ownership

The movement from public to private plants began in 1917. By 1926, 26 municipal plants had gone from public to private ownership, with the largest number of transfers in 1920 and 1926, when 6 and 5 plants respectively changed classification. Among these 26 plants, 17 changed abruptly from self-sufficing generating establishments to private plants, 5 changed from a status of purchasing all current to private ownership; 3 of them evolved from self-sufficing plants first into establishments purchasing all their supply and then into private ownership; only one instance is thus far recorded of a municipal establishment generating all of its output which shifted first to purchasing part of its supply, then to purchasing all, and finally was sold to private owners. If the present trends continue, future records are likely to show numerous instances in which the evolution from public to private plants has gone through these three steps.

This brief portrayal of some rather striking changes in the municipally owned portion of the electric light and power industry of Wisconsin is not in-

tended to call forth or recall the arguments for or arguments against the institution of municipal ownership. The writer believes that in comparatively few communities is public ownership a fetish for which people will make any great or continuous sacrifice. To phrase this in another way, the economic necessities and industrial technology of the electric light and power industry have far more to do with the character and extent of municipal ownership than all the appeals both *pro* and *con* that have been presented. In communities where people have chosen public in preference to private provision of their electric supply, inertia will tend to maintain the existing status, but beyond that there seems to be no reason why the small municipal plant can any more withstand the force of the new technological conditions than the small private establishments which are being superseded at an even more rapid rate. To test this proposition, an intensive search for historic fact is being pursued. Other states are being studied, and with more facts there should come more light.

Certain questions of both public and private policy are inevitably raised by the data shown in this article. These are reserved for future discussion, which will be based on more varied and extensive study. Information now at hand suggests, however, that the changes in Wisconsin are not typical of other states, at least not to the degree to which they have developed, and that some conditions in this state are unusual and very favorable to the kind of a transformation which appears to be going on. Nevertheless, the trend in Wisconsin may eventually prove to be a forecast of what will shortly follow in other states, for the Wisconsin records definitely show an uncertain future for municipal ownership in the electric

light and power industry. That future would seem to be dependent upon the possibility of satisfactory cooperation and service under conditions where private companies supply the electricity and the public authorities distribute it. Disadvantages of this division of responsibility exist and are already making themselves felt. If such a division of functions is not practicable, the new technology of the electric industry

would seem to have written the end of municipal ownership on any large scale, unless, through associations of municipalities or state ownership of power sources, the advantages of large-scale production and interconnection could be made available to municipal establishments. In order to survive, municipal plants need access to the same economies that are now open to the privately owned portion of the industry.

AGRICULTURAL ESTATE MANAGEMENT

By H. C. TAYLOR

DURING the past six years vast numbers of farm owners have lost their farms because of the deflation of the currency and because of unfavorable price ratios. These causes manifested their influence through high costs of production, high living costs, and high taxes, coupled with low prices for the products the farmers had for sale. In six years from January 1, 1920, to January 1, 1926, the value of farm property shrank about \$20,000,000,000. Bankruptcy was the inevitable result. According to recent estimates, farm owners are losing their farms at the rate of 400 a day. Large areas of farm land have been thrown into the hands of creditors since the beginning of the agricultural depression in 1920. This is not an entirely new thing. But the present situation is extraordinary in two respects. Nearly eight times as many farm bankruptcies were reported in 1924-1925 as in 1919-1920. In ordinary times, a foreclosed farm is sold at once, but now when a creditor takes land he finds no market for it. Hence some method of utilization must be sought. This has brought the problem of agricultural estate management into every real estate office, every bank, every mortgage investment company, and every insurance company.

Some of this land has fallen into the hands of retired farmers who presumably know how to manage it, but large areas have also fallen into the hands of widows, teachers, mortgage investment companies, insurance companies, and others, who know little or nothing about the management of farms. This

land in the hands of investors who have unintentionally become landlords is causing trouble to these new landlords and to those who wish to use the land. Some of the land has been sold to farmers for what it would bring. Approximately 31,000,000 acres of land reported in farms in 1920 was not included in farms in 1925. The management of this land is a problem in the mind of the erstwhile creditor who has become its owner and who must pay the taxes or lose title, but the fact that it is lying idle is beneficial to other farmers to the extent that it reduces the surplus of farm products. Much of the idle land cannot be farmed with profit at present costs of operation and present prices of farm products. Much of the foreclosed land is still in use and is being operated by tenant farmers. The new owners would, as a rule, be glad to sell the land they possess but "there is no sale for land." That is, would-be landowners are not buying land at the prices at which it is being held. Hence, a great many farms owned by people who know nothing of farming are being leased to tenant farmers. In many cases the creditor would do much better to make a debt adjustment on the basis of ability to pay and leave the debtor farmer on the land.

The management of foreclosed land has in some cases been turned over to expert farm management companies, but most of it is being leased to farmers by real estate brokers, bank officials, or the agricultural agents of mortgage companies and insurance companies. As a rule, these agents need to know more

about estate management than they do.

Estate management is a subject well developed in England. Men trained in agriculture and the law devote their lives to the management of the land belonging to the nobility. In the United States, landed estates have been rare and estate managers few, but conditions have now taken a new turn. Temporarily, at least, estate managers are needed. Without them, landowners will secure small returns, if not losses, on their investments and tenant farmers will suffer from irrational supervision. Where can estate managers be found? The answer is, they will have to be developed. Good raw material can be found. Here and there is a farmer who owns a number of farms which he is managing well. He is a good prospect. Among the graduates from agricultural colleges there will be an occasional man majoring in farm economics who has had experience and who possesses that degree of balance and judgment which makes him available as an estate manager.

The men selected by banks, mortgage loan companies, insurance companies, and similar organizations for the management of land should be given some time for special preparation before taking up the duties of the new position. One of the first things which these prospective estate managers should do is to visit an agricultural service organization, such as that of D. Howard Doane, of St. Louis, Missouri, and study the methods in use. The next step recommended is a visit to a number of estates under organized management. The Sibley estate at Sibley, Illinois, the Scully estate at Lincoln, Illinois, the Wadsworth estate at Geneseo, New York, are outstanding examples of estates which have been under effective management for a long period of time.

The prospective manager should study the system of records, the forms of contract, and the methods of supervision in use on these estates.

This is not enough, however. He should visit a large number of tenants and study their reactions to various forms of contracts and methods of managerial supervision. Good estate management requires a knowledge of farming, and some knowledge of law, but above all it requires a thorough knowledge of practical psychology. Lawyers can rarely be found who can draw a satisfactory farm contract. Knowledge of agriculture is more essential than a knowledge of the law in drawing up a paper that is to adjust the relations between a landlord and a tenant. No farm lease is useful if it does not lead to good farming. It is important, of course, to have leases drawn in legal form; yet though legal, if devoid of the necessary agricultural stipulations, the contract will be useless. Tenant farmers have little property. What the landowner gets as rent must come from the land. Under a good contract that stimulates good farming the owner of the land may secure a return on his investment, but bad farming yields no share for the owner.

The student of the problem of estate management will find that some estates are operated by hired labor and others by tenant farmers. To the former class belong the vast country places of wealthy men who keep farms for fun. They have their fun and pay the cost. The management of these farms throws no light upon the methods to be used in managing estates for profit. Here and there can be found a tract of many thousands of acres operated successfully in one unit by a hired manager. An excellent example is the Allerton farm at Monticello, Illinois.

This, however, is an exception to the rule. The Sibley estate and many others were once managed in this way and then converted into a series of family farms operated by tenant farmers.

The Fairway Farms Corporation, of Montana, was organized for the specific purpose of developing a method of handling land of a quality worth farming with a view to rehabilitating capable bankrupt farmers. The plan is to finance good men on good land on a basis that will enable them to become owners of the farms. This system was described in the April, 1926, number of the *Journal of Land & Public Utility Economics*.

While it is hoped that estate management will not become a permanent institution in the United States as it is in England, it would be a wise move for the companies who are interested in finding estate managers to organize

a short course of training through which managers and prospective managers could quickly acquire the available information on the various phases of the subject. Successful estate managers could doubtless be induced to teach courses relating particularly to the operating phases of estate management which would supplement the farm management, farm accounting, and legal training which could be presented by professional educators. This would improve the management of some of the land now farmed and might prove the best means of getting the land back into the possession of the farmers. The land now idle should not as a rule be brought back into use until a careful survey has been made to show its probable usefulness. Indeed, much of the idle land should perhaps be abandoned by the creditor who has unintentionally become its owner.

PROBLEMS OF AGRICULTURAL ESTATE MANAGEMENT

By D. HOWARD DOANE

THE depression in agriculture has brought about the failure of many farm owners who as a consequence have defaulted on payments on loans. The resulting foreclosures have made landowners out of many insurance companies, trust companies, banks, and individuals. These interests are facing a real problem in their attempt to operate these farms at a profit. The ordinary procedure is to place the newly acquired land in charge of some officer or employee of the institution, whose chief training and experience have been along other lines than practical agriculture. The work is generally assigned to some officer of

the institution, who may use as a field man an ex-appraiser, a country real estate man, or a country banker. Not infrequently, no field representative is regularly employed, and lands are rented through a local representative, who assumes the responsibility for collection of rents when these can be obtained without undue trouble. In this case a commission is ordinarily allowed, ranging from 5% to 10% of the amount of rent obtained.

I have mentioned this procedure in handling foreclosed properties because, as far as my observation goes, it has had one distinguishing characteristic, namely, operation at a loss.

Not long ago the writer was in a trust company where the vice-president in charge of real estate was complaining rather bitterly about the results of this method of handling the problem. I took occasion to say that although I had had a lifetime training and experience along farm management lines, I felt certain that it would be impossible for me to step into the place given him by the bank and successfully carry on the work that he was attempting to do. This officer had no practical agricultural experience, and the management of the foreclosed farms was given to him as a side line for which he must find extra time from his regular duties.

Agriculture is a business of relatively small and narrow margins. The old profit that accrued to landowners from 1900 to 1920 of approximately 10% a year in the form of increased land value has entirely disappeared. The only profits now are operating profits. These have been so uncertain since the beginning of the depression in 1920 that I do not believe that a person can undertake the management of a farm as a *side line* and handle it successfully.

The Doane Agricultural Service is a farm management organization. We have approached the problems of management as the public utility engineer approaches management problems in that field. Our organization is composed of men who have university training in agriculture and have proved their ability to handle the practical problems of farming. They devote their entire time to it. In our opinion, this is essential. We find it difficult, even under these conditions, to make profits regularly. It would seem much more difficult for the man who views his task as entirely incidental.

From our experience, some of the chief problems and necessary steps to successful management are the following:

1. The biggest problem is to *see the problem*. The ability to go on a farm and size up its chief difficulties is essential. Standards for measurement of farm management units are meager. Our agricultural colleges have not trained men along farm management lines for very many years. The first Farm Management Department ever organized in an agricultural college in the United States was about 1910 to 1912. Previous to that time, our colleges had trained men as specialists in soil, crop, fruit, or live stock. These men do not get the significance of, or the proper view for, meeting practical farm management problems.

2. A second important problem is the necessity for a rapid turnover of product. The normal farm turnover is annual. If most of our manufacturing business was reduced to an annual turnover, the profits in many instances would entirely disappear. The problem of turnover is particularly difficult in specialized sections such as the wheat, corn, or cotton belts. In diversified regions, increased turnover is more easily accomplished.

3. Another problem is that of increased volume of business. The net sales per unit of investment, or per acre, are ordinarily small. Volume can frequently be increased by renting additional land or by purchasing feed and feeder stock and turning raw products into finished. The normal tendency during this period of depression has been to cut down volume. This, in our opinion, is exactly opposite to the proper procedure. If an enterprise can be operated with any profit at all, the narrower the margin, the greater must

be the volume of business if total profits are to be maintained.

4. The correct point of view of management is essential. Problems of management vary materially between liquidation properties (those owned by individuals or companies who have taken them under foreclosure) and permanently owned farms. To meet this problem we have organized a Liquidation Farm Management Department. The point of view is so different that the treatment of permanently owned properties should not be compared or confused with that of those held temporarily. In the writer's opinion, many failures in the handling of temporarily owned properties are due to the fact that the one responsible for management has viewed his problems as he would those of permanently owned estates or farms.

Properties taken under foreclosure are ordinarily held for sale at the earliest possible moment. Loaning companies are not operating companies, and their view of ownership of a farm is simply that it is a necessary step toward the return of the original investment. The erection of improvements, draining of land, clearing, the building up of the fertility of the soil, expenditures for fertilizer, the effects of which are not quickly received, all come within a class of expenditures which must be carefully considered. Investment organizations should hesitate to send good money after doubtful. The view in most cases, therefore, should be one of minimum investment and expenditure and maximum *net* return, keeping distinct the difference between gross return and net. In some instances we have recommended that owners rent property at \$1 to \$2 an acre that had a producing ability of one-half to three-fifths of a bale of cotton, from 50 to

75 bushels of corn, and 3 to 5 tons of alfalfa to the acre. The cost to the new owner to obtain the production mentioned would be so great and would cover so long a period before any net return would be probable, that we deemed it more advisable to obtain the small rent rather than increase an already doubtful investment.

5. A careful appraisal of properties just prior to foreclosure should always be obtained. Within the last three years we have appraised more than 30,000 acres of land as valueless, notwithstanding the fact that much of it could be made to give yields that would be profitable under ordinary conditions. Some of these areas were small tracts or portions of larger bodies. For example: We have frequently advised that owners lop off and cease paying taxes on certain forties, eighties and quarter sections that were nonproductive portions or units of otherwise desirable tracts. If these appraisals show that certain units are undesirable and that their retention for operating purposes is definitely unprofitable, then they should be sold at any obtainable price or dropped, and taxes should not be paid upon them.

A few "don'ts" might be mentioned that have come to us through experience in the management of over 60,000 acres of land, both permanently owned and also in our Liquidation Farm Management Department:

1. Don't foreclose until a new appraisal has been obtained, after subdividing the tract into units representing separate or different classes or units of value.
2. Don't take under foreclosure land that cannot be profitably operated, or at least carry itself without addition of new capital for continued ownership.
3. Don't expect men inexperienced in

agriculture to manage farms successfully during a period similar to the present when operating margins even under favorable conditions are extremely small.

4. Don't assume that an officer of the company can treat the management of farms as a side line with successful results.

5. Don't expect a net return on operation when management is entrusted to a local man who will handle the property for a nominal percentage of gross returns.

6. Don't undertake an operating program that covers a long-time view, such as expenditures for improvements, drainage, clearing, or the like.

Experience has taught us definitely that there is no intermediate course for the successful handling of farm properties. The only possible chance for operating profit is to be found in devoting the entire time of the best men obtainable to the meeting of problems incident to efficient management. High-grade tenants must be obtained. Their work must be planned carefully and completely. Contracts and rent agreements must protect the full interests of the owners. Contacts with the tenants must be regular and constant, this applying particularly to the period of the year when crops are being harvested and divided.

Land is not always rented by the new owners, but the problems of management when managers are employed and all labor is hired, equipment purchased, and full operation made direct, increase greatly, although profits should increase correspondingly with good management.

If properties are favorably located, advantages may come from pooling the interests of the several units for buying and selling purposes.

In 1925 our organization had over 26,000 acres of land in its Liquidation Management Department. After paying all taxes, insurance, and operating costs of every kind, we made a net return of 6.1% on the book value of these properties. Our 1926 record is not yet complete, but we know now that it will not be so good, because some of our land is in the South, and the slump in cotton prices has very materially affected results there. We do feel, however, that good land in a good state of fertility, when taken over at current values, can be operated to return to the owners—the original mortgage holders—at least an amount equivalent to the original interest on the mortgage. To do this requires well planned and efficient management. The "side-line" method of "looking after farms" has proved wholly unsatisfactory as far as our observation goes.

A STUDY OF UTILITY FINANCIAL STRUCTURES: DISTRIBUTION OF INCOME¹

By A. E. PATTON and O. GRESSENS

FROM the financial point of view, the distribution of the gross revenues of public utility companies is of primary importance. In a previous article it has been shown that the representative rate of capital turnover of public utilities is somewhat lower than is ordinarily supposed and lower than the rate obtained from a simple average of the periods of capital turnover.

This makes the distribution of income an important consideration. The financial structures of most corporations are built with a view to the apportionment of the earnings. The value of the assets and the position of the corporation's security holders with regard to these assets are not so important as the amount of the revenues which are available after all periodical expenses, including fixed charges, have been met. The margin of safety for the bond-

holders and the earnings on capital stock are paramount considerations in building sound financial structures. At present it is generally accepted that public utility companies can carry a debt on which the fixed charges amount to one-half of the net earnings. It is both interesting and important to determine, therefore, from the study of a large sample, how closely public utility companies actually conform to this plan. The distribution of gross revenue between operating expenses, fixed charges, dividends, and reinvestments yields a general picture of the comparative proportion of gross revenues that are apportioned for these respective purposes.

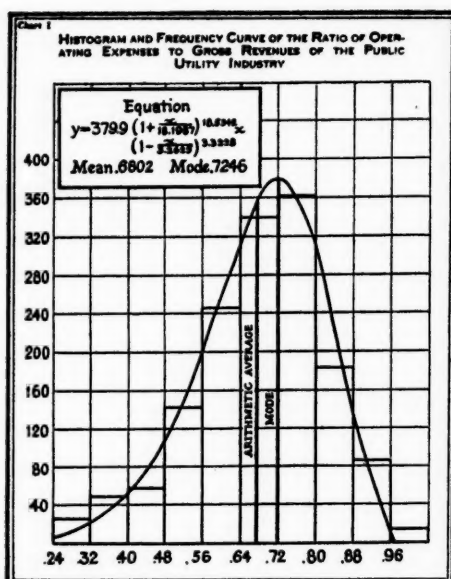
In examining the distribution of these ratios, significance again has been attached to the magnitude of the ratio which can be designated as representative for the respective distributions.²

¹ EDITORIAL NOTE: This is the fourth of a series of articles by these authors on the subject of financial structures of public utilities. For the first article, which treated scope and method, see the *Journal of Land & Public Utility Economics*, April, 1926. For the second article, which treated current position, see the *Journal of Land & Public Utility Economics*, July, 1926. For the third, which dealt with revenue production ratios, see the *Journal*, February, 1927. The fifth article, which will deal with earnings on investments, will appear in the next issue of the *Journal*.

² It is the value of this ratio rather than the commonly used arithmetic average which yields the most important single figure. The ratios used in this series of studies are not ideal ratios but are representative ratios. In other words, they are ratios which occur most frequently among the companies included in the sample. Or, more concretely, they are values about which the ratios of the greatest number of operating companies tend to concentrate. For a full discussion of the repre-

sentative ratios, see Footnote 3 of "A Study in Utility Financial Structures: Current Position," *Journal of Land & Public Utility Economics*, July, 1926.

Additional refinements in grouping companies herein considered would doubtless show more variations in the representative capital turnover periods than are shown by the differences which have been made. Electric light and power companies, for example, could be divided into hydro-electric and steam companies and could be studied separately. Additional differences would without question appear with every refinement in grouping. This is true even to a greater extent when individual companies are taken into consideration. The groupings used in these studies are thought to be sufficient to indicate the general characteristics of those types of public utility companies which are included in the study. From a study of these different types the general conclusion was warranted that public utilities as a group have a low representative capital turnover.



The following investigation into the disposition of income of public utility companies will present income statements divided into the proportions of gross operating revenues used to pay: (1) operating expenses, (2) fixed charges, and (3) the proportion available for capital stock and surplus.³

I. Representative Operating Ratio, Representative Ratio of Fixed Charges to Gross Revenues, and Representative Ratio of Net Income to Gross Revenues of the Public Utility Industry

³No revenues except operating revenues have been included in the income statements used in these studies. The expenses used in calculating the operating ratio include all operating expenses, depreciation, and taxes. Net earnings are defined as earnings before the payment of fixed charges. Net income, therefore, is the proportion of gross operating revenues available for preferred and common stocks and surplus.

⁴The distribution of the ratio in Chart I indicates a great many variations from this representative condition. The point of highest concentration of the ratio, however, appears at .72.

The operating ratio in public utility companies is one of the most important of these ratios, for the expenses incident to operations consume by far the greatest portion of gross revenues. The value of this ratio for the public utility industry as a whole, as computed from frequency curves fitted to the histogram of the distribution, is .72 (see Table I and Chart I). In other words, considering gas, electric light and power, and the electric railways together, the representative situation is one in which 72% of gross revenues are used to defray operating expenses.⁴

After operating expenses have been met, 28% of the gross revenues remain to meet the cost of borrowed capital and to be distributed between capital stock and surplus. The frequency curve fitted to the distribution of the ratio of fixed charges to gross revenues indicates a concentration about the value .13 (see Table II and Chart II). In other words, 13% of gross revenues are necessary in the representative public utility company to meet the cost of borrowed capital.

TABLE I. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF THE PUBLIC UTILITY INDUSTRY*

Class Interval	Observed Frequencies	Graduated Frequencies
.240-.319	26	7.3
.320-.399	50	21.5
.400-.479	58	54.3
.480-.559	143	117.3
.560-.639	245	214.6
.640-.719	339	323.7
.720-.799	362	379.9
.800-.879	183	303.7
.880-.959	86	112.1
.960-.999	13	1.5

*The first column of this table and of all the following tables indicates the size of the ratio of Operating Expenses to Gross Revenues; the second column shows the number of times a particular value actually occurs; and the third column shows the theoretical frequencies calculated from the curve fitted to the histogram. The last column, however, has not been made directly comparable to the second column, for the theoretical frequencies are here given as the y ordinates. No correction has been made to restate them as areas.

The gross revenues remaining after deduction for operating expenses and for fixed charges are available for dividends and for additions to surplus. By deduction, this should equal 15% of the gross revenues. By calculation from the frequency curve fitted to the distribution of the ratio of net income to gross revenues, however, the value of the representative ratio was found to be .14⁵. Approximately, 52% of net earnings are therefore available for dividend payments and additions to surplus. (Table III and Chart III.)

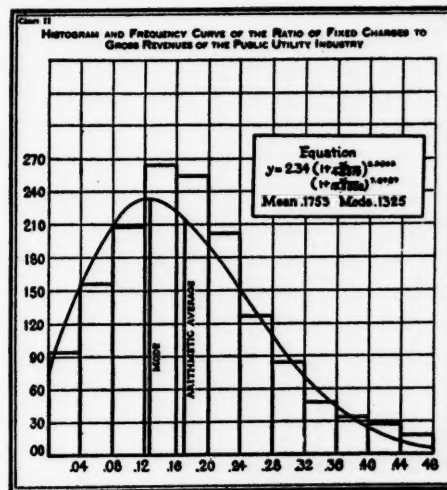
The general distribution of gross revenues in the representative public utility company, considering gas, electric light and power, and electric railway companies together, is 73% to cover operating expenses, 13% to cover cost of borrowed capital, and 14% to be used for dividends on capital stock and additions to surplus.⁶

⁵The error in these representative ratios is caused by the arbitrary groupings of the ratios into class intervals. The total error in the three ratios, the operating ratio, the ratio of fixed charges to gross revenues, and the ratio of net income to gross revenues, is .01. An approximate adjustment to correct this error would fix the value of the three ratios respectively at .73, .13, .14, instead of .72, .13, and .14, the values of the modes calculated from the frequency curves. Similar adjustments have been made in all subsequent ratios.

⁶This includes both preferred and common stock.

TABLE II. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF THE PUBLIC UTILITY INDUSTRY

Class Interval	Observed Frequencies	Graduated Frequencies
.000-.039	94	90
.040-.079	156	166
.080-.119	208	216
.120-.159	265	234
.160-.199	254	218
.200-.239	202	186
.240-.279	127	143
.280-.319	84	101
.320-.359	47	65
.360-.399	34	38
.400-.439	27	20
.440-.479	17	9



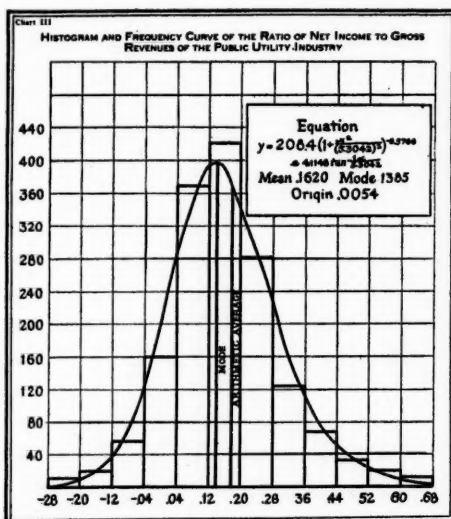
Ratio of Operating Expenses to
Gross Revenues—Operating
Ratio73
Ratio of Fixed Charges to Gross
Revenues13
Ratio of Net Income to Gross
Revenues14
1.00⁷

II. Representative Operating Ratio, Representative Ratio of Fixed Charges to Gross Revenues, and Representative Ratio of Net Income to Gross Revenues of Utility Companies of Various Sizes

In order to determine whether or not these ratios varied with variations in the sizes of companies, the utility companies included in this study were divided into three groups as follows:⁸

⁷The histograms of Charts I, II, and III indicate many variations from this distribution. This distribution is, however, representative, for the groupings of the respective values of these ratios, in each case, show high concentration about the modes.

⁸Attention is again called to the fact that no company whose total operating assets aggregated less than \$5,000,000 was included in these studies. Consequently, any significant differences in the distribution of income which might be expected in these comparatively small companies are not discovered in this study.



1. Companies having total operating assets which aggregated from \$5,000,000 to \$9,000,000, inclusive.

2. Companies whose total operating assets ranged between \$10,000,000 and \$49,000,000, inclusive.

3. Companies whose total operating assets exceeded \$50,000,000.

The values of the representative ratios for the companies having assets from \$5,000,000 to \$9,000,000 are as follows⁹ (see Tables IV, V, and VI and Charts IV, V, and VI):

Ratio of Operating Expenses to Gross Revenues—Operating Ratio .....	.72
Ratio of Fixed Charges to Gross Revenues .....	.15
Ratio of Net Income to Gross Revenues .....	.13

1.00

The representative earnings on capital stock in these groups of companies amount, therefore, to approximately 46% of the net earnings. The representative operating ratio is almost

⁹These ratios have been adjusted for the error incident to grouping.

identical with the representative ratio for the utility industry as a whole, and the other two ratios of this group vary only slightly from those of the entire industry.

For those companies having operating assets between \$10,000,000 and \$49,000,000, the representative ratios were as follows (see Tables VII, VIII, and IX and Charts VII, VIII, and IX):

Ratio of Operating Expenses to Gross Revenues—Operating Ratio .....	.73
Ratio of Fixed Charges to Gross Revenues .....	.12
Ratio of Net Income to Gross Revenues .....	.15

1.00

In this group of medium-sized companies, therefore, the representative case is one in which the proportion of gross revenues available for dividends on capital stock and for additions to surplus is approximately 56% of net earnings. Obviously, the charges on borrowed capital absorb 44% of the net earnings. There is no significant variation in the representative operating ratio.

For the group of largest companies, the representative distribution of in-

TABLE III. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF THE PUBLIC UTILITY INDUSTRY

Class Interval	Observed Frequencies	Graduated Frequencies
-.279 — -.200	11	4.0
-.199 — -.120	20	19.7
-.119 — -.040	57	77.0
-.039 — +.039	160	208.4
.040 — .119	370	356.6
.120 — .199	422	383.4
.200 — .279	282	279.3
.280 — .359	124	154.1
.360 — .439	67	71.4
.440 — .519	33	30.1
.520 — .599	20	12.2
.600 — .679	12	4.9

come is as follows¹⁰ (see Tables X, XI, XII and Charts X, XI, XII):

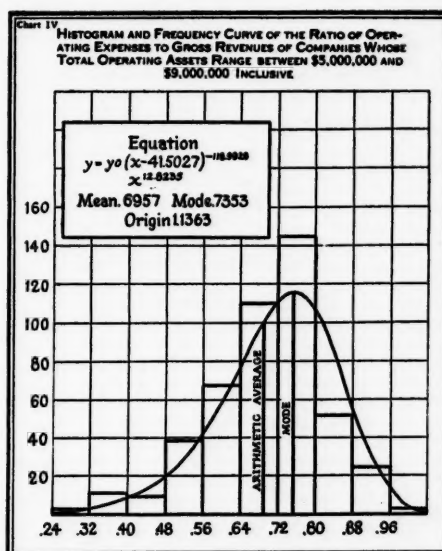
Ratio of Operating Expenses to Gross Revenues—Operating Ratio .....	.77
Ratio of Fixed Charges to Gross Revenues .....	.15
Ratio of Net Income to Gross Revenues .....	.08
	<hr/> 1.00

In this group, a significant increase in the magnitude of the representative operating ratio is noticeable. It would seem, therefore, that in the representative case the operating expenses absorb a greater proportion of gross revenues in the largest companies than in the other two groups. However, the concentrations about the mode (the representative ratio) in this group of largest companies are less than in the cases of the other two groups. The area under the frequency curve to the left of the mode for the operating ratio, for example, is greater than that for the other two groups of companies.

This tendency for operating ratios to be high in the case of the largest companies is indicated also by the simple arithmetic averages of the operating ratios. For the three respective groups of companies, the arithmetic averages of these ratios show a distribution of income as follows:

	I \$5- \$9,000,000	II \$10- \$49,000,000	III Over \$50,000,000
Operating Ratios..	.68	.67	.69
Ratios of Fixed Charges to Gross Revenues.....	.17	.17	.19
Ratios of Net Income to Gross Revenues.....	.15	.16	.12
	1.00	1.00	1.00

One important difference, however, is emphasized by these comparative

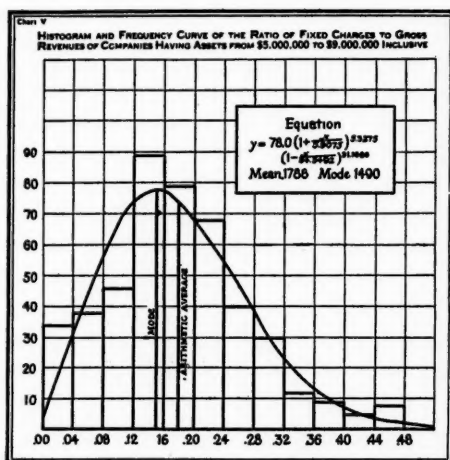


averages. The net earnings of the largest companies are divided approximately 39% for capital stock dividends and additions to surplus, and 61% for fixed charges. In the smallest and in the medium-sized companies, the net earnings are divided 47% and 53%, and 48% and 52%, respectively, for

¹⁰ The errors involved in these three ratios are greater than in any other distribution. They are, therefore, only approximations of the true representative values.

TABLE IV. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$5,000,000 TO \$9,000,000 INCLUSIVE

Class Intervals	Observed Frequencies	Graduated Frequencies
.24-.319	4	1.5
.32-.399	12	4.4
.40-.479	10	11.7
.48-.559	39	27.9
.56-.639	68	57.1
.64-.719	110	94.2
.72-.799	145	114.3
.80-.879	52	86.8
.88-.959	25	30.6
.96-.999	3	2.5



fixed charges and for earnings on capital stock and additions to surplus. The conclusions drawn for the representative cases are, therefore, substantiated by these averages. That is, those companies whose operating assets exceed \$50,000,000 are either financed on narrower equity than are the smaller companies, or the cost of their borrowed capital is greater.¹¹

III. Representative Operating Ratio, Representative Ratio of Fixed Charges to Gross Revenues, and Representative Ratio of Net Income to Gross Revenues of Gas and Electric and Electric Railway Companies

In order to determine whether or not there are any significant differences in the representative distributions of revenues for the various kinds of utilities, the 200 companies included in this study were divided as follows:¹²

1. Gas and Electric Light and Power Companies.
2. Electric Railway Companies.

¹¹ This will be discussed again in a later article, "The Distribution of Equities." It is important to note here that a greater proportion of net earnings go to meet fixed charges in this group than in the other two groups of companies.

The representative operating ratio of electric light and power companies, as calculated from the frequency curve fitted to the histogram of the distribution, is .73 (see Table XIII and Chart XIII). The representative ratio for this group, therefore, is substantially the same as the ratio determined for all companies considered together. There are, of course, differences between the frequency curves fitted to the distribution of Chart I and Chart XIII. It is the purpose of this study, however, to determine only the representative values of these various ratios.¹³

The representative value of the ratio of fixed charges to gross revenues for this group of companies as determined

¹² Gas and electric light and power companies were not separated, because it is so often impossible to segregate these two services in cases where they are sold by the same company. The distribution for twenty-five holding companies is not shown. There is no concentration about any particular value in the case of the holding companies. It is impossible, therefore, to present typical ratios for companies of this type.

¹³ These representative ratios are more significant than the ordinary averages because they represent more actual cases than do the arithmetic averages of the ratios. Furthermore, there are more observations immediately adjoining the values of these ratios than are found grouped about their arithmetic averages.

TABLE V. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$5,000,000 TO \$9,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	34	23.8
.04—.079	38	49.7
.08—.119	46	70.6
.12—.159	89	78.0
.16—.199	79	72.0
.20—.239	68	57.7
.24—.279	40	44.3
.28—.319	30	26.7
.32—.359	12	15.8
.36—.399	9	8.7
.40—.439	5	4.0
.44—.479	8	2.1

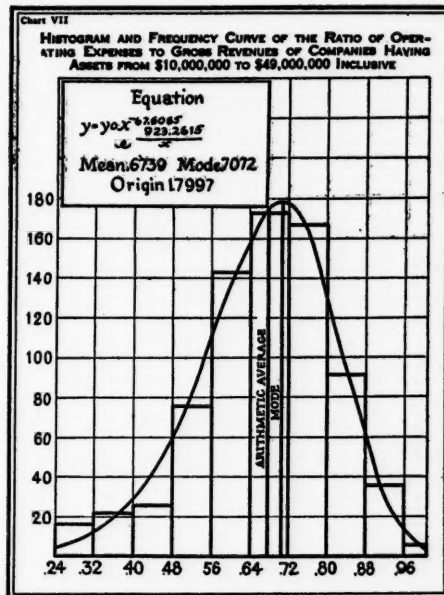
TABLE VI. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$5,000,000 TO \$9,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
-.279 — -.200	6	2.7
-.199 — -.120	6	13.7
-.119 — -.040	24	43.4
-.039 — +.039	49	87.1
.040 — .119	125	113.0
.120 — .199	130	100.5
.200 — .279	73	67.0
.280 — .359	33	35.9
.360 — .439	21	16.7
.440 — .519	14	7.0
.520 — .599	9	2.8
.600 — .679	2	1.6

from the frequency curve is .12 (see Table XIV and Chart XIV).

Operating expenses and fixed charges in the representative instances of this group of companies consume, therefore, about 85% of the gross revenues. The representative value of the ratio of net income to gross revenues is .18 (see Table XV and Chart XV). As calculated from these curves, therefore, the earnings for capital stock and additions to surplus for this group of companies are 60% of the net earnings.

When the ratios for this group of companies have been adjusted for the

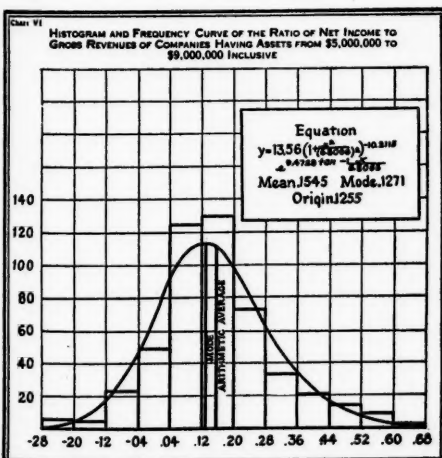


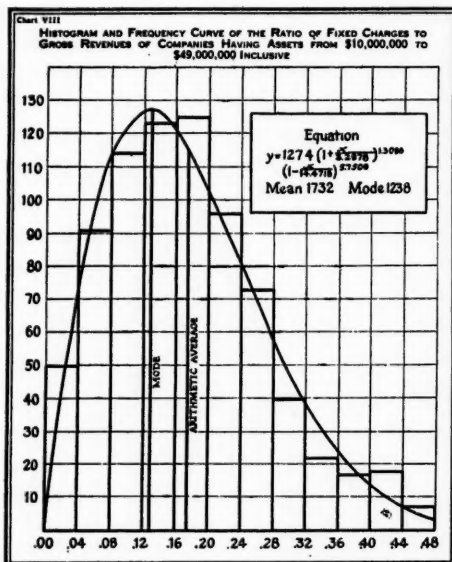
errors incident to the grouping of the original observations into class intervals, they yield the following distribution of income:

Ratio of Operating Expenses to Gross Revenues—Operating Ratio .....	.71
Ratio of Fixed Charges to Gross Revenues .....	.12
Ratio of Net Income to Gross Revenues .....	.17
	<u>1.00</u>

TABLE VII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$10,000,000 TO \$49,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.24 — .319	16	6.5
.32 — .399	22	17.0
.40 — .479	26	39.5
.48 — .559	76	80.0
.56 — .639	143	134.1
.64 — .719	173	175.2
.72 — .799	167	164.7
.80 — .879	92	99.2
.88 — .959	36	33.4
.96 — .999	6	4.7





These companies show, therefore, a greater proportion of net earnings available for capital stock and additions to surplus than is the case when all companies are considered together.

The representative distribution of income in the case of electric railway companies shows a significant variation from the distributions thus far presented (see Tables XVI, XVII, and XVIII and Charts XVI, XVII, and XVIII). The apportionment of the gross revenues of these companies is as follows:

Ratio of Operating Expenses to Gross Revenues—Operating Ratio .....	.78
Ratio of Fixed Charges to Gross Revenues .....	.17
Ratio of Net Income to Gross Revenues .....	.05
	1.00

In the representative electric railway company, therefore, the earnings available for capital stock and additions to surplus are approximately 23% of the

net earnings, as compared with 60% of the net earnings in the similar case of the gas and electric light and power companies. Both the operating ratio and ratio of fixed charges to gross revenues are significantly higher. The cost of borrowed capital in the representative electric railway company absorbs 77% of the net earnings.

IV. Representative Operating Ratio, Representative Ratio of Fixed Charges to Gross Revenues, and Representative Ratio of Net Income to Gross Revenues of Utility Companies According to Geographical Locations

For the purpose of comparing the representative ratios of companies located in the various parts of the United States, the companies included in this study were divided into the following groups: western, southern, middle western, and eastern.¹⁴ The distributions for the different geographical areas are shown in the table at the top of the opposite page.

¹⁴ The representative ratios for this class of companies were not calculated from fitted frequency curves. Consequently, these ratios are not directly comparable with the representative ratios of the

TABLE VIII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$10,000,000 TO \$49,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	50	16.2
.04—.079	91	79.1
.08—.119	114	116.5
.12—.159	123	127.4
.16—.199	125	119.3
.20—.239	96	100.7
.24—.279	73	78.0
.28—.319	40	56.1
.32—.359	22	37.2
.36—.399	17	22.8
.40—.439	18	12.6
.44—.479	7	6.2

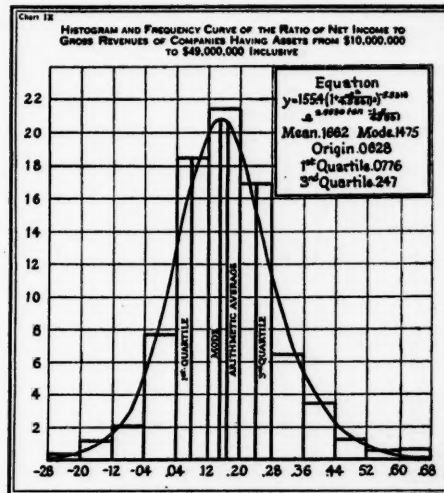
	West- ern	South- ern	Middle- western	Eastern
Ratio of Operating Expenses to Gross Revenues — Operating Ratio.....	.66	.63	.73	.70
Ratio of Fixed Charges to Gross Revenues.....	.14	.15	.17	.16
Ratio of Net Income to Gross Revenues.....	.20	.21	.10	.14
	1.00	.99	1.00	1.00

The significant differences noticeable in the representative distributions of these four geographical divisions are: (1) The operating ratio of the companies located in the middle west shows the highest proportion of gross revenues for operating expenses, while that of the southern companies shows the lowest proportion used for these expenses; (2) The middle western companies also show the highest proportion of gross revenues used to pay the cost of borrowed capital; (3) The southern companies show the largest proportion of net earnings available for dividends on capital stock.

An examination of these representative distributions also shows how comparatively small variations in the operating ratio may cause large and significant variations in the ratio of net income to gross revenues. It is evident,

(Footnote 14 continued from page 196)

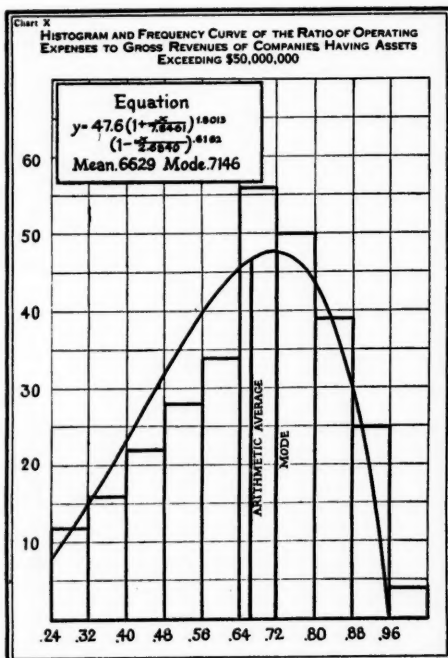
groups presented above. They show, however, close approximations of the distribution of the particular groups to which they apply. The ratios in this and the following division of the utility companies were approximated from the histogram by Pearson's approximation formula for the mode. It is noticeable that the sum of the three ratios thus calculated in every case diverged more from 1.00 than the sum of the same ratios calculated from the fitted frequency curve. This is due, no doubt, to the fact that the approximation formula for calculating the mode introduced errors additional to those involved in the arrangement of the original ratios into class intervals.



too, that the eastern companies approach, more closely than the other groups, the proposed financial plan according to which not over 50% of net earnings should be used to meet the cost of borrowed capital. In the eastern companies, approximately 53% of net earnings are used for fixed charges. In the cases of the western and southern companies, on the other hand, approximately 41% of the net earnings are used to pay the fixed charges. These variations, however, do not necessarily

TABLE IX. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF COMPANIES HAVING ASSETS FROM \$10,000,000 TO \$49,000,000 INCLUSIVE

Class Interval	Observed Frequencies	Graduated Frequencies
-.279 — -.200	4	1.1
-.199 — -.120	12	4.9
-.119 — -.040	21	20.7
-.039 — +.039	77	69.4
.040 — .119	185	155.4
.120 — .199	215	208.0
.200 — .279	169	169.6
.280 — .359	65	95.1
.360 — .439	35	42.4
.440 — .519	13	16.9
.520 — .599	7	6.5
.600 — .679	7	2.5



constitute an indictment against any particular group of companies. There is no reason why a plan which would allow only 50% of the net earnings for the payment of interest and long-term debt should be considered absolutely fixed and rigid. An equity much thinner than this might be sufficiently safe in the case of a public utility company which has established itself successfully

TABLE X. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF COMPANIES HAVING ASSETS EXCEEDING \$50,000,000

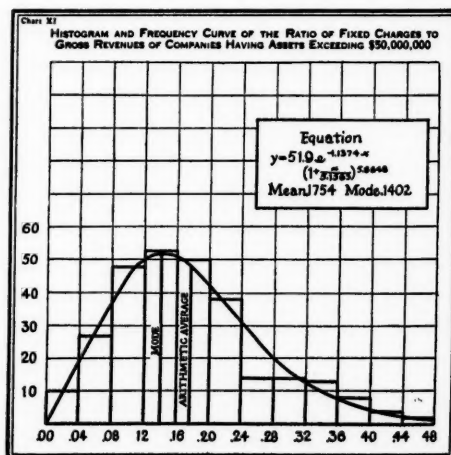
Class Interval	Observed Frequencies	Graduated Frequencies
.240-.319	12	14.6
.320-.399	16	23.1
.400-.479	22	31.7
.480-.559	28	39.5
.560-.639	34	45.4
.640-.719	56	47.6
.720-.799	50	44.3
.800-.879	39	30.1
.880-.959	25	9.4

TABLE XI. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF COMPANIES HAVING ASSETS EXCEEDING \$50,000,000

Class Interval	Observed Frequencies	Graduated Frequencies
.00-.039	10	9.5
.04-.079	27	28.2
.08-.119	48	45.7
.12-.159	53	51.9
.16-.199	50	47.0
.20-.239	38	36.5
.24-.279	14	25.2
.28-.319	14	15.9
.32-.359	13	9.4
.36-.399	8	5.2
.40-.439	4	2.8
.44-.479	2	1.4

as a going concern. It is well known, as a matter of fact, that the utility industry is a relatively stable one. The problem of whether or not a significant increase in the industrial load will change the characteristics of the industry is, of course, another question. Again, economic differences, not further inquired into here, may fully explain the indicated differences between these four geographical divisions.

V. Representative Operating Ratio, Representative Ratio of Fixed Charges to Gross Revenues, and Representative

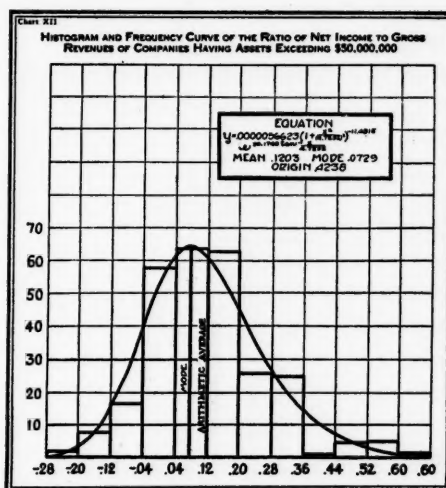


Ratio of Net Income to Gross Revenues of the Public Utility Industry for the Years 1917, 1919, 1921, and 1924

The representative income statements for all of the companies included in this study for the type years 1917, 1919, 1921, and 1924 show marked variations. The representative ratios for these years are summarized as follows:

	1917	1919	1921	1924
Ratio of Operating Expenses to Gross Revenues—Operating Ratio.....	.65	.70	.74	.68
Ratio of Fixed Charges to Gross Revenues..	.17	.18	.14	.14
Ratio of Net Income to Gross Revenues....	.18	.12	.12	.18
	1.00	1.00	1.00	1.00

From this summary of ratios it is evident that the years 1917 and 1924 show net income ratios which are materially higher than those for the years 1919 and 1921. The only indication of a regular trend is in the seemingly persistent tendency for a decrease in the ratio of fixed charges to gross revenues. It shows a decrease of approximately 21% in 1921 and 1924 over 1917. The greatest decrease in the

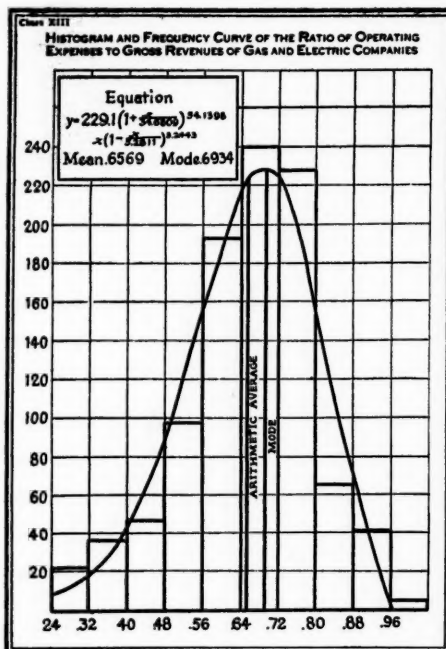


ratio of net income to gross revenues was caused by the increase of the operating ratio during the years 1919 and 1921. This ratio increased approximately 8% in 1919 over 1917, and 14% in 1921 over 1917. In 1924, it again decreased so that it stood only 5% higher than in 1917.

Significant variations do take place, therefore, in the distribution of income over a period of years. It is important to notice, too, that the chief cause for variations in the net income to gross revenues ratio can be traced to variations in the operating ratio. It is particularly in the fluctuations of operating expenses that public utility companies are affected by changing conditions. The regulation of rates, which prohibits a delicate adjustment of prices of utility services to market conditions, causes the chief fluctuations in gross revenues to arise from changes in the consumption of service on the part of the public utility customers, rather than from a combination of changes in consumption and in price. The operating expenses, however, not being rigorously regulated, are subject to variations

TABLE XII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF COMPANIES HAVING ASSETS EXCEEDING \$50,000,000

Class Intervals	Observed Frequencies	Graduated Frequencies
-.279 — -.200	2	.2
-.199 — -.120	8	3.0
-.119 — -.040	17	18.5
-.039 — +.039	58	46.6
.040 — .119	64	64.1
.120 — .199	63	58.2
.200 — .279	26	40.0
.280 — .359	25	23.0
.360 — .439	1	11.8
.440 — .519	5	5.6
.520 — .599	5	2.6
.600 — .679	2	1.1



caused by changes in wages, prices of materials, cost of fuel, and other items which enter in the operation of a public utility company. It is true, of course, that the reductions in net income which are caused by this condition in adverse years are offset by the increase in net income in favorable years. The comparative constancy, therefore, which results from the regulation of rates has

TABLE XIII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF GAS AND ELECTRIC COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.240—.319	22	12.8
.320—.399	37	31.9
.400—.479	47	70.2
.480—.559	98	130.4
.560—.639	193	196.8
.640—.719	240	229.1
.720—.799	228	188.6
.800—.879	66	93.8
.880—.959	42	20.0
.960—.999	5	2.2

TABLE XIV. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF GAS AND ELECTRIC COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.00—.039	86	97.3
.04—.079	99	152.7
.08—.119	150	170.0
.12—.159	186	157.2
.16—.199	149	127.0
.20—.239	122	94.7
.24—.279	70	61.6
.28—.319	33	37.6
.32—.359	28	21.2
.36—.399	21	10.9
.40—.439	10	5.4
.44—.479	6	2.2

a tendency to cause large variations in net income because operating expenses, however closely supervised, cannot be similarly regulated.

Conclusions

The representative distribution of income of public utility companies shows that about 72% of gross revenues are used to pay operating expenses, and that net earnings are divided so that 50% are used to pay interest on debt and 50% are available for earnings on capital stock. This agrees, in general,

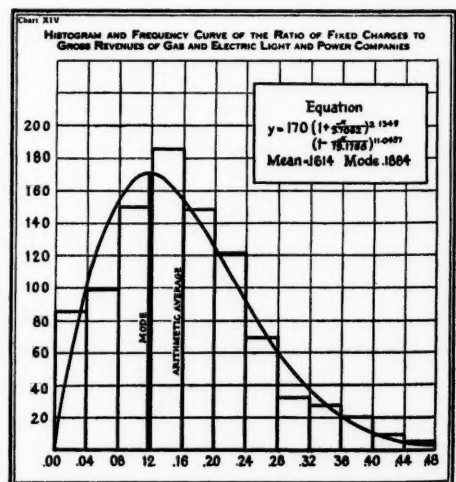
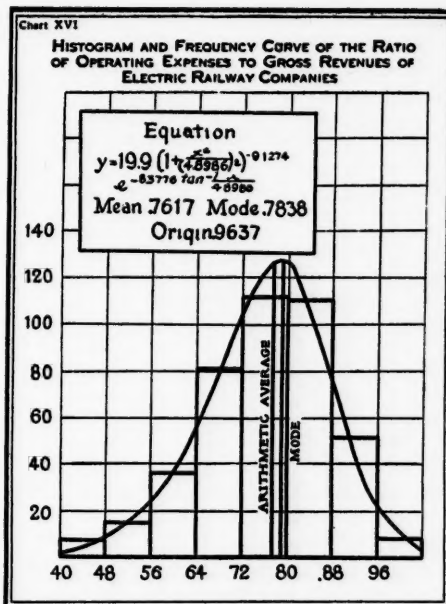


TABLE XV. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF GAS AND ELECTRIC COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
-.279 — -.200	4	1.7
-.199 — -.120	3	5.3
-.119 — -.040	18	18.3
-.039 — +.039	55	63.9
.040 — .119	185	183.9
.120 — .199	322	310.7
.200 — .279	234	248.7
.280 — .359	102	111.1
.360 — .439	52	38.3
.440 — .519	18	12.7
.520 — .599	6	4.4
.600 — .679	4	1.7

with the financial plan which has been advanced, namely, that the fixed charges of long-term debt should not consume more than one-half of net earnings. Electric railway companies, however, in the representative case, use a much higher proportion for payments of fixed charges. Only about 5% of gross revenues, or about 23% of net earnings, remain after operating expenses and interest charges have been paid.

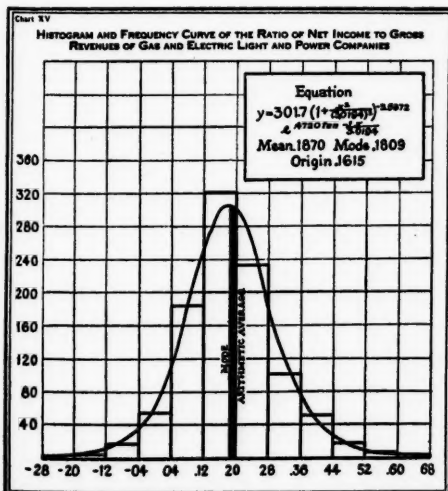
When the companies in this study are divided according to size, the representative distribution of income of the

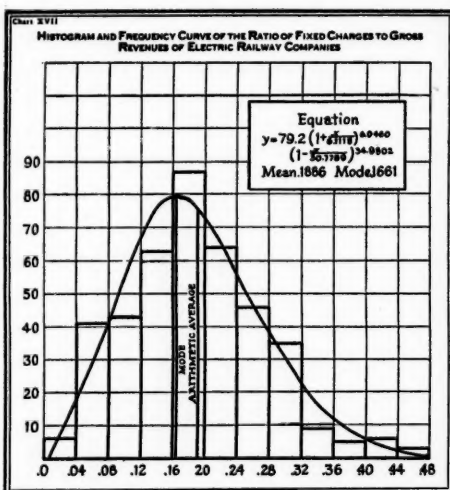


group of companies whose operating assets aggregate at least \$50,000,000 indicates a greater proportionate payment for fixed charges than is true of the other two groups. There is, however, less concentration in the distributions of this group of companies than in the cases of the other two groups. The averages of these ratios indicate the same situation, although the average operating ratio is considerably lower than the representative operating ratio for this group of companies.

TABLE XVI. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF OPERATING EXPENSES TO GROSS REVENUES OF ELECTRIC RAILWAY COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
.40 — .479	8	2.4
.48 — .559	15	7.8
.56 — .639	36	23.1
.64 — .719	81	58.4
.72 — .799	112	108.5
.80 — .879	111	125.3
.88 — .959	52	74.0
.96 — .999	8	19.9





The approximated distributions of income for the four geographical divisions of the United States indicate a higher operating ratio in the case of the middle western companies than in any of the other geographical groupings. They also indicate a smaller proportionate amount of gross revenues available for earnings on capital stock. It must be remembered in this connection, however, that these companies may be financed on thinner equity, and that the actual earnings per share of capital stock are not shown by these ratios.

TABLE XVII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF FIXED CHARGES TO GROSS REVENUES OF ELECTRIC RAILWAY COMPANIES

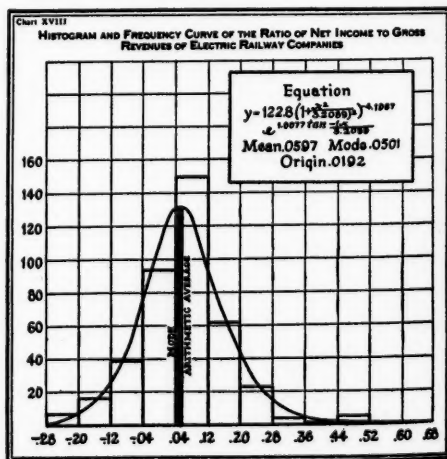
Class Interval	Observed Frequencies	Graduated Frequencies
.00-.039	5	3.6
.04-.079	41	18.9
.08-.119	43	45.7
.12-.159	63	70.1
.16-.199	87	79.2
.20-.239	64	71.5
.24-.279	46	53.9
.28-.319	35	35.1
.32-.359	9	20.5
.36-.399	5	10.2
.40-.439	6	4.7
.44-.479	3	1.9

TABLE XVIII. OBSERVED AND GRADUATED STATISTICS OF RATIOS OF NET INCOME TO GROSS REVENUES OF ELECTRIC RAILWAY COMPANIES

Class Interval	Observed Frequencies	Graduated Frequencies
-.279 - -.200	7	4.1
-.199 - -.120	17	17.7
-.119 - -.040	39	60.5
-.039 - +.039	94	122.8
.040 - .119	150	111.9
.120 - .199	62	54.3
.200 - .279	23	18.8
.280 - .359	4	5.9
.360 - .439	1	1.9
.440 - .519	5	.66
.520 - .599	..	.25
.600 - .679	..	.12

Obviously marked variations in the distribution of income take place over a period of years. There seems, however, to be a fairly well defined tendency towards a reduction in that portion of gross revenues used to pay interest charges. The large variations which take place in the ratio of net income to gross revenues are due primarily to fluctuations in the operating ratio.

In general, it can be said that the financial plan of having fixed charges equal approximately one-half of net earnings, leaving the other half available for earnings on capital stock, seems to be well founded in fact.



DEVELOPMENT AND PRESENT SCOPE OF LAND ECONOMICS¹

By GEORGE S. WEHRWEIN

LAND economics as a subject of instruction and as a field for research can be traced to the work of Dr. Ely on the distribution of wealth. A course in this subject was given at the University of Wisconsin in 1910, which treated the distribution of wealth among individuals as it is influenced by the fundamental institutions of property, contract, inheritance, vested rights and personal conditions, and by the fundamental forces of custom, competition, monopoly, public authority, and benevolence. Property in land soon received special attention in the course. This part of the work was separately offered in 1911 under the title, "Landed Property and the Rent of Land," and was repeated practically every year thereafter until 1919. At that time the name of the course was changed to "Land Economics," in conformity with the name applied to a new division in the Bureau of Agricultural Economics of the United States Department of Agriculture.

The more practical and applied problems of land tenure, settlement, large landholdings, and the like were treated in seminars held jointly with the staff working in Agricultural Economics, while the theory of rent was often given special consideration at the historic Round Table in Economic Theory

which met at Dr. Ely's home. The original course in the "Distribution of Wealth" has been continued under various names, but is now generally called "Economic Institutions," or "Fundamental Institutions."

The idea of research in this subject developed and expanded as the field of instruction became broader. The paper on "Landed Property as an Economic Concept and as a Field for Research," which Dr. Ely read before the American Economic Association in 1916, reveals the scope of research in this sphere of economics.² In 1920 the Institute for Research in Land Economics and Public Utilities was organized to do active work in the two fields mentioned in its title. Further specialization in courses took place. "Urban Land" was offered in 1922, and in 1924 courses in real estate were started. Other courses offered at the University of Wisconsin were "The Evolution of Land Systems," "Land Policies," and the "History of Federal Land Policies."

After the Institute moved its headquarters from Madison to Chicago, advanced courses and seminars in "Urban Land Economics" were offered in Northwestern University, and the real estate courses were increased and expanded. At the present time this uni-

¹ EDITORIAL NOTE: At the meeting of the American Economic Association at St. Louis last December, sixteen men gathered informally for the purpose of discussing the field and scope of land economics, particularly from the standpoint of instruction. It was the sense of the meeting that an article tracing

the development of land economics as a field of instruction and of research under the direction of Dr. Ely would be very valuable. This is the *raison d'être* of this survey.

² *The American Economic Review*, March, 1917.

versity lists the following courses. The figures indicate semester hours.

GROUP I

- Elements of Land Economics (3)
- Real Estate Practice (2)
- Real Estate Fundamentals (2)
- Urban Land Economics (2)

GROUP II

- Real Estate Valuation (2)
- Property Management (2)
- Fundamental Institutions (2)
- Real Estate Finance (2)
- Land Planning (2)

GROUP III

- Principles of Land Economics (3)
- National Land Policies (3)
- Land Income (3)
- Urban Land Problems
- Economics of Agriculture (3)
- Economics of Mineral and Power Resources (Summer School, 1926) (3)
- Seminar in Urban Land (3)
- Seminar in Land Problems (3)
- Round Table in Economic Theory (3)

Since 1919 the basic course in "Land Economics" has undergone considerable change and development. The course as then given centered around the idea of property in land. This was natural, since it was an outgrowth of the course dealing with the fundamental institutions. Much attention was given to the various kinds of land but particularly to agricultural land, the characteristics and description of various natural resources, and property relationships. Land income, valuation, taxation, tenure, and ownership were generally treated in another semester or in graduate seminars, but gradually were given greater prominence in the basic course.

At Northwestern University, two general courses are given, the "Elements of Land Economics" to undergraduates and the "Principles of Land

Economics" to graduates. In the former course an inventory is made of the land resources of the world; their characteristics and the economics of their utilization are discussed. Property, social control, and the conservation of natural resources are given a prominent place. The following topics are treated:

1. Land Economics Defined and Described
2. Property in Land
3. Classification and Characteristics of Land
4. Utilization of the Earth's Surface
5. Agricultural Land; Humid, Arid, and the Tropics
6. Forest and Cut-over Land
7. Water Resources
8. Recreation Land
9. Mineral and Power Resources
10. Urban Land
11. Problem of a Food Supply
12. Conservation of Natural Resources.
13. Ownership and Tenure
14. Social Control over Land
15. Rent; Valuation; Speculation in Land
16. Land Credit
17. Policies of Utilization—Settlement and Colonization

"The Principles of Land Economics"

The advanced course emphasizes the economic principles underlying the utilization of land. A logical order has been aimed at in presenting the various topics. After defining land economics and showing the importance of property relationships, land classification is discussed, and the principal types of land are briefly described and their characteristics noted. Whereas this part is the main body of the undergraduate course, it is treated as introductory material in the advanced course. The economic characteristics of land are discussed thoroughly, with especial notice of how these are like or unlike the characteristics of capital. The spa-

tial element of land with its corollary, location or situs, is given separate treatment. Since population and land resources are the two blades of the shears in the general problem of land scarcity, they are considered next, followed by a discussion of the economic principles which underlie private utilization and conservation of natural resources. These principles must be understood before the theory of rent or land income can be mastered. From there we proceed to land valuation, giving due attention to the land market, amenity values, and speculation. At this point the control exercised by society through the police power and eminent domain is introduced, and the practical effects of zoning, planning, and regulation are noted. The discussion of the taxation of land follows, since taxation may be used as a means of social control and since it affects the value and the utilization of land. Property and social control open up the question of ownership; and because tenancy is a phase of ownership, it is given particular emphasis. Land credit is next considered, with special reference to the kind of credit necessary for financing land utilization and to the function of credit in promoting land ownership. The course closes with a brief discussion of land settlement, the expansion of the agricultural area, land policies and problems. However, the extended discussion of the last topic is reserved for the course in "Land Policies" which follows the "Principles of Land Economics."

"Urban Land Economics"

It will be noted that the "Principles of Land Economics" might appropriately be termed the "political economy" of land or natural resources, because

it emphasizes the public point of view and public policies. Only one chapter, the one dealing with the economic principles underlying private utilization of land, approaches the problem from the standpoint of the individual utilizer. In contrast with this form of approach, the course in "Urban Land Economics" has evolved from the private point of view. The material included is in answer to the question: What rules or principles should be followed in utilizing a particular piece of urban land—say a given business site, commercial property, or residential property? The utilizer is interested in land income as it affects his profits in utilizing a site and not so much as it is concerned with a theory of the distribution of wealth. The value of land has a practical bearing for him. As he tries to utilize it, he finds himself constrained by various forms of social control; thus, zoning, height limitation, excess condemnation, et cetera, come into the scene. A consideration of the possible trends in values and uses leads him to study city growth and structure and the changes that may be expected.

However, the public aspects of these problems are not entirely neglected, for the course also deals with public and private ownership of land, tenancy, and taxation. A discussion of the development of the urban economy, the classification, and the characteristics of urban land introduces this study.

No matter which approach is used, the same subject-matter will be covered when the work is completed. Nevertheless, the emphasis is different. To those who are acquainted with the two approaches to the economics of agriculture, namely, farm management and agricultural economics, this will have a familiar ring. The course as given in

Northwestern University this year follows the following plan:

PART I

THE DEVELOPMENT OF THE URBAN ECONOMY

1. The Causes of Urbanization
2. The Economic Basis of the Urban Economy
3. The Extent and Character of Urbanization
4. The Location of Cities
5. The Structure of Cities
6. The Future of Cities

PART II

URBAN LAND UTILIZATION

7. The Classification of Urban Land
8. How Cities Use Their Land
9. The Nature and Characteristics of Urban Land
10. Some Factors Conditioning Urban Land Utilization
11. Economy in Urban Land Utilization
12. Production Costs in Urban Land Utilization
13. The Competition of Uses
14. The Ratio of Improvement Value to Land Value
15. Maintaining the Investment.
16. Public Economy in Land Utilization

PART III

PUBLIC CONTROL OF URBAN LAND UTILIZATION

17. The Social Theory of Property
18. Forces and Methods of Public Control
19. Urban Land Planning
20. Urban Land Zoning
21. Building Height Limitation
22. Rent Regulation
23. Urban Land Taxation
24. Discriminatory Urban Land Taxation

PART IV

URBAN LAND TENURE AND TENANCY

25. Urban Land Ownership
26. Tenancy and Home Ownership in the United States
27. The Problem of Urban Housing
28. Urban Land Credit

PART V

URBAN LAND VALUES AND VALUATION

29. The Nature of Urban Land Income
30. The Measurement of Urban Land Income
31. Earned and Unearned Elements in Urban Land Income
32. From Land Income to Land Value
33. General Factors Affecting the Value of Urban Land
34. Elements of Value in Particular Sites
35. Urban Land Valuation

DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

BOOK REVIEWS

This department contains critical reviews and brief notices of new books of interest to the readers of the JOURNAL.

- WALTER E. LAGERQUIST, "Public Utility Finance".....*Paul L. Morrison* 208
- WARREN G. BAILEY and D. E. KNOWLES, "Accounting Procedures for Public Utilities"..*Ernest C. Davies* 209
- FREDERICK A. BUECHEL, "The Commerce of Agriculture".....*George S. Wehrwein* 210
- HARLEAN JAMES, "Land Planning in the United States for the City, State and Nation".....*Jacob L. Crane, Jr.* 211
- YOUNG B. SMITH and NOEL T. DOWLING, "Cases on Public Utilities," G. H. ROBINSON, "Cases and Authorities on Public Utilities".....*John D. Sumner* 212
- Book Notices..... 214

SUMMARIES OF RESEARCH

In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.

- Public Utility Financing During the Year 1926..*Marion C. Richter* 217
- Cost of Steam Railway Capital, 1925-1926.....*Herbert B. Dorau* 219

COMMENTS ON LEGISLATION AND COURT DECISIONS

Here the readers of the JOURNAL will find a miscellany of summaries and interpretations of recent legislation, court decisions, and documents that have economic significance in land and public utility problems.

- Valuation by the Interstate Commerce Commission for Recapture of Excess Earnings..*David E. Lilienthal* 222

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BOOK REVIEWS

Lagerquist, Walter E. *PUBLIC UTILITY FINANCE*. Chicago: A. W. Shaw Company, 1927. pp. xix, 664. \$7.50.

Public Utility Finance, edited by Dr. W. E. Lagerquist, is the first volume to appear in the announced series of *Materials for the Study of Public Utilities* published for the Institute for Research in Land Economics and Public Utilities under the general editorship of Richard T. Ely and Herbert B. Dorau. The foreword announces that a complete series has been planned, including volumes on public utility economics, regulation, finance, labor, accounting, operation and management, and rate-making.

The purpose of the material in this volume, as stated by Dr. Lagerquist, is "to study the character of the facts which must be examined and the methods which must be used in making a financial analysis of a public utility." The approach is similar to that used in corporation finance except that no reference is made to financial involvements. "Such an examination of the finances of public utilities includes not only the subject of internal finances of public utilities, but that of organization, engineering, accounting, law, and financial markets."

The subject-matter consists of about a hundred articles, extracts, and citations. They have been culled primarily from technical periodicals and trade association publications of the last 15 years, although there are a few extracts from textbooks. Seven sections were taken from Lagerquist's "Investment Analysis" to supply gaps, particularly in the subjects of capitalization and the statistical tests used in the

analysis of public utilities. Where, in the opinion of the editor, suitable material was not available and where introductory or "continuity" remarks were needed, they have been supplied by the editor, twenty-one such articles appearing, principally in the first third of the volume. Practically the entire chapter on working capital is the product of Dr. Lagerquist. Editorial comments have been confined to subjects rather than to specific articles. Since "in controversial matters an effort has been made to include each side of the controversy," the editor's opinion does not find expression on controversial questions.

The twenty-six chapters can be roughly grouped into six divisions: (1) organization, (2) securities and their market, capitalization, and regulation, (3) investigation, (4) centralization and diversity, (5) operation, including expenses, costs, depreciation, surplus and reserves, and (6) barometrics, budgets, and taxation.

It is manifestly impossible in a volume of this character to cover exhaustively such technical topics as regulation, centralization of power supply, diversity, depreciation, and taxation. The purpose has been rather to introduce the reader to these subjects so that he will recognize the existence of problems which need further study. That purpose has been accomplished. It is barely possible, however, that specialists in these particular fields may suggest that some of these articles have been superseded in the rapid development of the industry.

Despite the fact that the book is a collection of a large number of distinct

articles, continuity has been maintained very well. A reviewer might suggest certain changes in arrangement of the material, depending upon his particular inclinations, but there is nothing sufficiently out of place or so difficult to find that specific mention is warranted.

Although Dr. Lagerquist's compilation is not put forward as a textbook, it will, no doubt, be used to supplement instructors' lectures in courses in public utility finance, in the absence of an adequate textbook in the field. In fact, the reviewer has, for the past two years, used in mimeographed form a considerable portion of the material now appearing in the book for his course in public utility finance and has found it to be valuable supplementary reading. As stated in the preface, there is only one book on the general subject of public utility finance, *The Financing of Public Service Corporations*, by Milton B. Ignatius, but it deals primarily with general corporation finance and the regulatory side of public utility financial practices.

The volume by Dr. Lagerquist is therefore a valuable addition to the literature of both public utilities and private finance. It represents the choice articles appearing among thousands of pages of less valuable material, selected by an authority whose judgment is highly respected.

PAUL L. MORRISON

Bailey, Warren G., and Knowles, D. E.
ACCOUNTING PROCEDURES FOR PUBLIC UTILITIES. Chicago: A. W. Shaw Company, 1926. pp. xx, 375. \$7.50.

For years accountants, and particularly instructors and students of accounting, have been greatly handicapped by the lack of material in the public utility accounting field. The scantiness of literature in this impor-

tant phase of accounting makes this latest contribution all the more welcome. In the first paragraph of the preface the statement is made that "the authors have sensed the need for a reference book that would in a satisfactory manner review briefly the accounting practices in utility companies." To the reviewer, it would seem that this book will be very valuable in meeting this need.

In Chapter I, Introduction, the authors discuss the functions of utilities, their development and their relations with state and local governments. Chapter II deals with the place of accounting in public utilities, and Chapter III, with the question of uniform accounting, classifications, and so forth. Beginning with Chapter IV, there is an orderly treatment of internal accounting methods and procedures, dealing first with the general records and then in detail with the methods and forms peculiar to the industry but necessary for the proper recording of the information. Many topics not previously touched upon in books on this subject are covered in detail, such as timekeeping and pay-roll records, distribution of labor charges, accounting for materials and supplies, customers' accounting, including discussions of the various systems in use, accounting for refunds and adjustments, and auditing procedure. The internal point of view is maintained throughout, and the text has been strengthened by the generous use of illustrations of forms used. In the words of the authors, "in most instances the procedures presented are a composite of those used in various companies."

The book is well written, clear and logical, reflecting a thorough knowledge of the field, and at the same time easily readable.

It will certainly prove to be a valuable reference book and will more than fulfill the hope of the authors that it may be of "some help . . . in pointing the way to better accounting methods."

ERNEST C. DAVIES

Buechel, Frederick A. *THE COMMERCE OF AGRICULTURE*. New York: John Wiley & Sons, 1926. pp. 439.

The author of this book was in charge of the work in Agricultural Administration at the Agricultural and Mechanical College of Texas. He developed a four-year course in agricultural administration based on the idea of treating agriculture as an *industry*, or rather as a set of industries, such as the wheat industry, cotton and poultry industries. The first course in this plan is called "Agricultural Resources of the World," in which the student is given a general survey of the various commodities that enter into the commerce of agriculture.¹ The need of a suitable text for a course of this kind prompted the author to prepare this book.

The book is divided into four parts. In the first part the relation of population to the land supply is discussed. The author is inclined to hold to the Malthusian doctrine of an expanding population in a world where the best soils have been brought into use and the production on all soils is limited by the law of diminishing returns. In the second part the physical environment of agriculture is discussed under climate, physiography, soils, and "centers of production." Under the last mentioned heading the centers of origin of the cultivated plants are

treated and typical centers of production are presented—the corn belt of America, Eastern China, the Amazon basin, and the western range country of the United States. This part of the book occupies 115 pages and is quite detailed. Special attention is given to the influence of the physical environment on the agriculture of the United States.

Part three takes up separately the important agricultural resources—the cereals and forage crops, animal food products, vegetable oils, starchy foods, fruits, nuts, and vegetables, beverages, spices, tobacco and rubber, fiber and forest products. Wheat may serve as an example of the treatment used: (1) The historical development of wheat culture in America, (2) the physical and biological factors affecting the production of this cereal, (3) areal distribution over the world, and (4) economic factors such as cost of production, plan of the cropping system, marketing, exports, tariff, and the outlook for the industry.

The last part is a brief discussion (only 20 pages) of trade, with special reference to agricultural trade and agricultural organization.

The teacher of land economics will find the book very useful in his discussion of the physical basis of land utilization and in his treatment of agricultural and forest land. However, he will find an overemphasis of the physical factors and not as much discussion of the economic factors as he would like to see for his purpose. But the book was not intended as a text in land economics. Also the title suggests to most readers the trade, marketing and distribution of agricultural products. This part of the subject occupies one of the smallest parts of this volume. The subtitle, "A Survey of Agricultural

¹ F. A. Buechel, "Land Grant College Curricula," *Journal of Farm Economics*, January, 1927, p. 53-65.

Resources," is more indicative of the contents of the book.

GEORGE S. WEHRWEIN

James, Harlean. *LAND PLANNING IN THE UNITED STATES FOR THE CITY, STATE AND NATION*. New York: The Macmillan Company, 1926. pp. xxiii, 416. \$5.

The science and art of city planning or, more comprehensively, land planning in America is more in need of critical, technical study and discussion than it is of generalized promotional comment. The volume by Miss James falls most readily into the promotional classification, and from this point of view it only adds another book to the large and mounting literature of this type. Nevertheless, Miss James' study marks an important widening of outlook in that it deals not only with the history and general aspects of city planning, but also with rural planning and with the more significant phases of state and nation-wide planning. In this broad field the volume is admirably comprehensive and suggestive, particularly for the layman and the officials of municipalities, counties, regions, states and of the nation.

In a preface Dr. Richard T. Ely, whose Institute of Land Economics is contributing in a vital way to the critical analysis of both rural and urban land problems, points out concisely the significance of scientific land utilization studies as the basis for sound land planning, whether it be agricultural or city land. And Dr. Albert Shaw in a brief introduction makes imaginative and stimulating comment upon the progression from primitive to pioneer laissez-faire policy and on to the contemporary application of science and good taste through individual and community action to our methods of land utilization and civic development.

Miss James' book is divided into three principal sections, the first dealing with early land policies and the planning of our pioneer towns, the second with the history, principles, and methods followed in contemporary city planning, and the third with national and state planning.

In the first section the significance of the policies and images set up by the early, unprofessional methods of rural and town planning and continued to the present time are illustrated by the practices followed in the then urban centers. A real understanding of the background of our contemporary land-planning methods cannot be given better than through this historical review.

The first chapter of the second section deals with the history of conscious, professional city planning in America. The author then divides city planning into seven or eight subdivisions based upon the physical elements of the city and discusses each one in a brief but comprehensive manner. These chapters, and in particular the other chapters of this section dealing with regional planning, city-planning procedure, and the methods of carrying costs, will be illuminating and valuable to the non-professional student and to the layman, but they are not very important as contributions to the technical study of city planning.

The third section, dealing with national and state planning, is perhaps the most valuable portion of the book. Here the author comments upon the futilities of piecemeal land planning, which prompt her to discuss land economic surveys, the forest problem, the preservation of recreational and scenic assets, the problem of water resources, major land utilization on a national scale, the vital necessity for agricultural land planning, and the existing and pos-

sible agencies for Federal and State planning. Miss James has brought together in this section a great deal of widely scattered data and suggestive comment upon a phase of land planning into which the country is just entering and which promises to be more fruitful even than the application of city planning has been. No student of land planning, professional or lay, should fail to read this review of the larger aspects of land planning.

An extremely valuable feature of the volume is the list of suggested readings at the end of each chapter. Miss James has gathered in these bibliographies not only the usual professional items but also many non-technical but worth-while publications.

The author is to be congratulated upon the way in which she has preserved a bird's-eye view of the whole land-planning problem. The volume marks a new epoch in the discussion of land planning because it gets away from the common fault of losing sight of the forest in examining individual trees. On the other hand, what amounts to almost a blight of optimism in placing faith in organizations and methods which from the technical standpoint must obviously undergo vital modifications, leaves the book without the critical approach which city planning particularly needs at its present stage of development.

JACOB L. CRANE, JR.

Smith, Young B., and Dowling, Noel T. *CASES ON PUBLIC UTILITIES*. St. Paul: West Publishing Company, 1926. pp. xxiv, 1,258.

Robinson, G. H. *CASES AND AUTHORITIES ON PUBLIC UTILITIES*. Chicago: Callaghan & Company, 1926. pp. xxvii, 976.

Both of these recent case books are worthy additions to the existing books on public utility law and have features that commend them to students of pub-

lic utility economics. In the compilation by Professors Smith and Dowling, the chapter on rates, which is contributed by their colleague in Columbia University, Professor Robert Hale, is especially noteworthy. Professor Robinson's collection of cases is unique in being fully annotated.

The law of public utilities is constantly changing as statutes are amended and courts and commissions hand down new decisions. A case book is therefore limited by the necessity of selecting cases which show the trend of judicial and commission opinion. In this connection it is unfortunate that the opinions of the United States Supreme Court in the Indianapolis Water Company case and of the Interstate Commerce Commission in the St. Louis and O'Fallon case appeared after these case books were off the press.

The cases selected by Professors Smith and Dowling are arranged under the four main headings of regulation and control of business, supervision of public utilities, service, and the liability of a utility. For the most part the cases are of recent American origin, but the common-law basis of utility regulation is not overlooked.

Professor Hale's chapter on rates deals with some of the most perplexing problems of public utility regulation. He has carefully selected the outstanding opinions of judicial review, fair value and its varying standards and elements, fair rate of return, current expenses, division of joint rates, rate reductions and net earnings, earnings from a particular branch of service, value of the service, and the problem of excessive or deficient earnings. It is as thorough and well-ordered a treatment of this complicated subject as might be achieved in a work of this type.

Professor Robinson's organization and scope of material is best described in his own prefatory words: "This volume seeks to show a modern view of the general subject. Grouped around three ideas, it presents first, the utility concept; second, the obligations to the general public which lie in the concept, and their enforcement; and third, those duties of performance which run to the individual for whom service is undertaken. Of these last the treatment is brief, since texts on the carrier and the inn cover them fully."

English cases of historical interest are absent, and a conscious effort has been made to present the general field of the law of public utilities from a contemporary point of view. With this aim in mind, the author has selected recent American cases which "show the commissions at work and the courts out

of the field of direct regulation, for such is the actual situation." This is a contrast with some of the case books commonly in use as texts in public utility law.

The outstanding feature of Professor Robinson's work is the supplementary notes added at the end of the sections. In these notes are included discussions by the author of various points raised in other cases, together with citations to such cases and to leading articles on the subject in the various law journals. Such complete annotations are especially commendable, not only because the comments in legal periodicals are inherently valuable, but also because a case book, by its very nature, cannot cover all the angles of such complicated problems as fair value, rate of return, depreciation, and the several theories of valuation.

JOHN D. SUMNER

BOOK NOTICES

Belloc, Hilaire. *THE HIGHWAY AND ITS VEHICLES*. London: *The Studio, Ltd.*, 1926. pp. xvi, 40, and 131 plates. £3.3s. net.

Any comment on *The Highway and Its Vehicles* must begin with a word or two about the volume itself. It is a book of about 140 pages, 40 of which are devoted to the text and the remainder to illustrations. The illustrations, a number of which are in color, are reproductions of paintings (water colors and oils), etchings, woodcuts, engravings, prints, drawings taken from illuminated manuscripts. It seems as if every available source had been searched in an effort to make this pictorial presentation tell as completely as possible the evolutionary process by which we have reached our present advanced stage of comfort and efficiency in travel by land. The heavy, springless coaches of the seventeenth century and before, the litters, the hackney coaches, the high-swung phaetons, and the diligence are all represented. From this rich collection of pictures alone it would be possible to reconstruct a very complete history of the evolution of land travel.

The illustrations do more than merely depict the different types of vehicles in use in different periods. They also throw light on the cities and the countryside along the routes of travel. We see here pictorially presented the close relationship which exists between the land and the "public utilities." For instance, we learn that London had a traffic problem in the seventeenth century, owing to the large number of hackney coaches.

The text divides itself into two parts. In the first Mr. Belloc puts forth and explains his theory that the vehicles caused the development of the highway and not vice versa. He discards the idea that military maneuvers were responsible for the development of the highways and points out that vehicular traffic and not pedestrian traffic, even in military formation, made the construction of the highways imperative.

The gauge of vehicles, determined by the space necessary for two persons to ride side by side, became the standard for measuring the width of the highway. The lack of skill in making wheels resulted in low-swung vehicles which made the construction of

bridges necessary. The use of vehicles for transporting heavy commodities necessitated improved surfacing of roads. These are the ways in which the vehicle caused and shaped the development of the highway.

However, the highway in turn has not been without its effect on the vehicle. The improvement of the highway led to increased passenger traffic, with the effect of creating a demand for better vehicles and also for further improvement of the roads. Mr. Belloc then brings the subject down to date by raising the question as to which element will dominate the situation in the future. He is inclined to think that the vehicles will be the element that must be adapted to the highways. Three considerations bring him to this conclusion: the high cost of producing highways; the disturbance of individual interest that highway changes involve; and the uncertainty of the future, by which he means that the rapid evolution of transportation facilities may render obsolete certain improvements almost before they are completed.

Here is a problem in land economics and a problem in public utilities. It suggests the need for planning in order to bring about a proper relationship between the two. The text, though brief, is informing, and the illustrations add more perhaps in the way of detail and human interest than could be supplied by a longer descriptive account. Only a limited edition of the book is being published.

HELEN C. MONCHOW

Fry, C. Luther. *AMERICAN VILLAGERS*. New York: *George H. Doran Company*, 1926. pp. xv, 201. \$2.50.

This book by Dr. C. Luther Fry opens up a new and long-neglected field of inquiry. The importance of the village in our American life has been overlooked. Cities and their problems have been studied and some investigations have been made into rural life. But the great intervening field—the villages which contain roughly one-eighth of the total population of the United States—has gone unnoticed by students of American community life.

Not only does nearly every eighth Ameri-

can live in a village but that part of our population that lives in villages is growing. "From 1900 to 1920 villages actually increased in population more rapidly than the nation as a whole—and several times more rapidly than the rest of the 'rural' population. As a result, villagers are steadily becoming a more and more important element of the nation's 'rural' population."

Village improvement takes on new importance in the presence of these facts. In many instances villages are not ready to assume the functions which their growing importance requires of them. Frequently their administrative machinery is not equal to the demands upon it. Planning with respect to land utilization is another department in which villages are frequently weak. These two fields alone suggest the great possibilities for village improvement.

In what may be regarded as a second main division of the book Dr. Fry inquires into the character of the American village: what villagers do for a living; what sort of people live in agricultural villages; what are the peculiarities of the village populations; and what economic and other functions villagers perform.

Dr. Fry's book has broken ground in a new field. The materials for this study were secured from hitherto unpublished data in the files of the United States Census Bureau. The inadequacy of the available data sets limits to the conclusions to be drawn, but an excellent beginning has been made. It should point the way to much-needed further study of American villages and their problems.

HELEN C. MONCHOW

Grimes, William A. FINANCING AUTOMOBILE SALES BY THE TIME-PAYMENT PLAN. (First Prize, Chicago Trust Company Monograph), Chicago: A. W. Shaw Company, 1926. pp. x, 116. \$2.50.

The time-payment plan of buying is an old friend, but it has reached its height and fullest development in the financing of automobile sales. Mr. Grimes has written a very fine historical sketch of the development of this plan in the automotive industry. He has shown why, with the increasing use of automobiles by the salaried and wage-earning class, it became the chief way to finance these purchases. Finally he has painted a very good picture of the place this method has

come to occupy in our present-day field of finance and shown why it has become a permanent feature.

In the last chapter Mr. Grimes gives a favorable answer to the question: "Is the plan sound?" Differences of opinion will arise over some of his statements, which are apparently calculated to disprove the most common criticisms of installment buying. He quotes aggregate figures of our increased national savings to prove that this plan does not discourage saving, which seems to the reviewer a *non sequitur*. He does not allay convincingly the fear that too easy purchase may lead to overextension of the productive capacity of the industry. Nor does he have much to say regarding competition among automobile financing companies leading to ever easier, but more dangerous, terms of payment.

Granted that the automobile has a permanent place in our present standard of living, it does not follow that the present method of financing purchases is the one and best method. The test comes in a time of stress when there is every inducement to postpone paying for the necessities of life in order to meet payments on a semiluxury like an automobile. This is hard on the merchants and doctors who have to wait to have their bills paid. As long as every one is working and the pay envelope is full, this side of the question does not show itself; but when employment is hard to find, the evils of the time-payment plan, even under conservative management, begin to assert themselves. Mr. Grimes passes over this angle of the question, but it should be faced. If ignored, it will raise itself.

R. H. MARSHALL

LeRossignol, James Edward. FIRST ECONOMICS. Chicago: A. W. Shaw Co., 1926. pp. vii, 183. \$2.

Professor LeRossignol gives simply and concisely the fundamentals of orthodox economics. The material, however, is somewhat oversimplified. To the young student the book should be helpful and enlightening. For the mature reader, however, the book has too small an amount of critical and interpretative material to be of much value other than as a quick resumé of elementary principles of economics.

ANNA E. MOREHOUSE

Reuter, E. B. *THE AMERICAN RACE PROBLEM*. New York: Crowell's Social Science Series, 1927. pp. xii, 448. \$2.75.

Professor Reuter presents an analysis of the status of the negro in the United States today with the historical background necessary to understand the present situation. The treatment is impartial in so far as this is possible with so controversial a subject. There is an extensive bibliography at the end of each chapter for those readers who wish to follow up a particular interest.

Professor Reuter attempts to break down many of the current prejudices, such as the feeling that the negro race is mentally inferior. While this may be so, the author feels that there is insufficient scientific evidence at present upon which to base such an assumption. He emphasizes throughout the effect of

environmental factors in producing such differences as exist, and at times it seems that he overemphasizes environment.

A sentence in the final paragraph of the book—"As a result of intermixture the negroes as such ultimately will disappear from the population and the race problem will be solved"—seems inconsistent with his previous discussion, in which he stresses the existence of deep-seated racial prejudices and the need for taking them into account in any solution of the problem.

The student of land economics will find only very slight mention of the negro in relation to the land. It is a book, however, which should help to dispel many prejudices and open the way for more impartial consideration of the perplexing economic and social problems involved.

ANNA E. MOREHOUSE

OTHER BOOKS RECEIVED

BOGART, ERNEST L., AND LONDON, CHARLES E. *Modern Industry*. New York: Longmans, Green & Co., 1927. pp. x, 583. \$3.75.

MAULDON, F. R. E. *A Study in Social Economics*. Melbourne: Robertson & Mullens, Ltd., 1927. pp. 197. 12s. 6d.

ZANGERLE, JOHN A. *Principles of Real Estate Appraising*. Cleveland: Stanley McMichael Publishing Organization, 1924. pp. 358.

FOSTER, WILLIAM T., AND CATCHINGS, WADDILL. *Business Without a Buyer*. Boston: Houghton-Mifflin Co. for the Pollak Foundation for Economic Research, 1927. pp. xvi, 192. \$2.

SUMMARIES OF RESEARCH

PUBLIC UTILITY FINANCING DURING THE YEAR 1926

THE volume of public utility financing for the year 1926 was more than \$200,000,000 greater than the volume recorded during the year 1925, \$1,974,451,346 as compared with \$1,725,033,504. This increase in the volume of public utility financing was accompanied by an increase in the total volume of all corporate financing, with the result that the relationship between the two did not materially change. In 1925 public utility financing amounted to 36.41% of all corporate financing; in 1926 it amounted to 37.26% of the total. Table I shows that the volume of public utility financing has been increasing steadily since 1919. In 1926 this movement reached its peak with an index number of 427.

For the purpose of further analysis the public utility corporations have been classified according to the type of service rendered, into the following groups: telephone and telegraph; gas; gas and electric; purely electric; railway and electric; railway and water. Classifying the securities according to the type of utility issuing them we find that in 1926 the gas and electric companies issued a greater volume of securities than any other class of utility. The total par value of securities issued by companies rendering gas and electric service during that year was \$750,073,089, or 38.0% of the par value of securities issued by all public utilities. Companies rendering electric service only issued the next largest total par value of securities, \$594,327,029,

TABLE I. INDEX NUMBER OF VOLUME OF PUBLIC UTILITY FINANCING, 1919-1926*

	1919	1920	1921	1922	1923	1924	1925	1926
By Months								
January.....	100	67	55	46	122	112	199	173
February.....	48	28	25	47	66	89	172	125
March.....	25	27	25	43	94	78	144	115
April.....	5	38	25	50	64	112	69	182
May.....	15	38	35	150	66	233	103	230
June.....	26	20	9	96	92	122	118	181
July.....	41	25	115	44	21	104	90	177
August.....	20	11	33	22	40	62	93	58
September.....	54	44	34	147	34	77	110	38
October.....	24	33	33	77	59	112	92	123
November.....	8	21	119	43	161	69	102	136
December.....	20	63	53	54	135	111	153	114
By Quarters								
First quarter.....	100	71	61	80	164	162	299	240
Second quarter.....	27	56	41	172	129	271	168	344
Third quarter.....	67	47	105	123	55	141	170	159
Fourth quarter.....	30	68	119	101	206	169	201	217
By Years.....	100	107	145	212	246	330	373	427

*Volume for January, 1919, First Quarter, 1919, and Year 1919 used as basis for computing index numbers for months, quarters, and years, respectively. Compiled from the records of the *Commercial and Financial Chronicle*.

TABLE II. PERCENTAGE DISTRIBUTION OF NEW PUBLIC UTILITY SECURITY ISSUES ACCORDING TO UTILITY CLASS OF ISSUING CORPORATION, 1919-1926*

Utility	1919 Percentage of Total	1920 Percentage of Total	1921 Percentage of Total	1922 Percentage of Total	1923 Percentage of Total	1924 Percentage of Total	1925 Percentage of Total	1926 Percentage of Total
Telephone and Telegraph.....	26.8	12.2	29.7	24.9	18.7	17.9	16.4	13.7
Gas.....	4.9	2.2	2.2	8.5	8.0	1.6	3.5	3.4
Gas and Electric.....	17.4	38.6	24.2	20.7	25.6	35.9	39.7	38.0
Electric.....	15.7	25.4	14.1	20.5	32.8	27.6	21.4	30.1
Railway and Electric.....	26.6	17.7	25.9	21.1	9.7	8.1	5.4	3.8
Railway.....	7.7	2.7	2.7	2.8	2.4	6.8	2.3	2.2
Water.....	.9	1.2	1.2	.8	2.8	2.0	2.8	3.3
All Utilities.....	100.0	100.0	100.0	100.0†	100.0‡	100.0§	100.0||	100.0¶

*Including all classes of interest-bearing obligations and all classes of stock. Security issues of steam railways are not included. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*.

†Steam utility issues of \$6,000,000 and representing .7% of all issues are included in the total.

‡Steam utility issues of \$300,000 are included in the total.

§Steam utility issues of \$2,314,000 and representing about .1% of all issues are included in the total.

||Includes foreign utility issues and steam utility issues representing 8.5% of the total.

¶Includes foreign utility issues and steam utility issues amounting to 5.5% of the total.

amounting to 30.1% of the total. The electric companies reported the greatest increase in 1926 in volume of securities over that reported in 1925. In 1925 they floated securities with a total volume of \$369,375,162, amounting to only 21.4% of the total volume of public utility issues (Table II).

The yield to investor at offering

price on public utility financing was lower in 1926 than in the preceding year, thus continuing the downward trend started in 1921 (Table III). All securities at all maturities sold at a price during 1926 to yield the investor 5.53% on the dollar and 5.72% on the issue. Corresponding figures for the year 1925 were 5.58% on the dollar

TABLE III. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY SECURITY ISSUES

YEAR	ALL TYPES OF SECURITIES						BONDS AND NOTES	
	ALL MATURITIES		LONG-TERM		SHORT-TERM			
	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield	Weighted Average Yield	Simple Average Yield
1919.....	6.55	6.68	6.21	6.25	6.78	7.03	6.54	6.67
1920.....	7.55	7.64	7.52	7.59	7.59	7.68	7.53	7.62
1921.....	7.13	7.47	7.11	7.42	7.27	7.66	7.11	7.45
1922.....	6.06	6.34	6.03	6.32	6.39	6.53	6.03	6.34
1923.....	6.04	6.31	5.99	6.26	6.73	6.72	6.11	6.29
1924.....	6.03	6.14	6.04	6.16	5.97	6.04	5.98	6.12
1925.....	5.58	5.81	5.66	5.83	5.55	5.86	5.56	5.78
1926.....	5.53	5.72	5.52	5.70	5.77	5.82	5.44	5.66
First quarter.....	5.65	5.78	5.63	5.75	6.26	6.02	5.53	5.71
Second quarter.....	5.52	5.72	5.53	5.74	5.37	5.64	5.46	5.69
Third quarter.....	5.62	5.69	5.57	5.65	5.90	5.73	5.45	5.60
Fourth quarter.....	5.36	5.68	5.32	5.61	5.79	6.01	5.30	5.62

and 5.81% on the issue. The yield to the investor on long-term securities for 1926 was 5.66% on the dollar and 5.7% on the issue, a drop of .14% on the dollar and .13% on the issue from the yield to the investor on long-term securities in 1925. During 1926, short-term securities brought a return to the investor of 5.77% on the dollar and 5.82% on the issue. The yield to the investor on each dollar of short-term security issues was materially higher in 1926 than in 1925. In the latter year

the return per dollar to the investor on this type of utility was only 5.55%. Further analysis of the short-term issues for the year 1926 shows that 33 issues, representing 48% of the par value of all issues of this type, sold at a price to yield 6% or more. Bonds and notes only sold at a price to yield 5.44% on the dollar and 5.66% on the issue in 1926 as compared with a yield of 5.56% on the dollar and 5.78% on the issue in 1925.

MARION C. RICHTER

COST OF STEAM RAILWAY CAPITAL, 1925-1926

THIS summary of the cost of steam railway capital during the last six months of 1926 is presented in order to bring up to date, as far as possible, the analysis of steam railway financing from 1920 to June, 1926, which was

TABLE I. SUMMARY OF COST OF RAILWAY CAPITAL, 1925-1926*

		1925 Year	1926				
			Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Yield on securities for which price to company is avail- able:							
All securities....	Number of issues.....	171	168	36	51	34	47
	Par value.....	\$543,476,440	\$432,664,311	\$112,671,500	\$134,358,950	\$77,906,300	\$107,727,561
	Yield at price to company	5.44	5.23	5.31	5.03	5.33	5.31
Bonds.....	Number of issues.....	93	71	17	17	17	20
	Par value.....	358,760,545	278,254,600	71,989,000	59,636,300	65,688,900	80,049,400
	Yield at price to company	5.63	5.34	5.45	5.11	5.39	5.36
Equipment trust certificates.....	Number of issues.....	50	37	11	11	6	9
	Par value.....	166,717,076	126,253,500	33,300,000	63,647,000	5,194,500	24,112,000
	Yield at price to company	5.06	4.97	5.02	4.91	4.82	5.11
Miscellaneous...	Number of issues.....	28	60	8	23	11	18
	Par value.....	17,998,819	28,156,211	7,382,500	11,075,650	7,022,900	2,675,161
	Yield at price to company	5.17	5.26	5.20	5.31	5.11	5.60
Yield on securities for which both price to company and to investor are avail- able:							
All securities....	Number of issues.....	56	52	13	14	12	13
	Par value.....	422,490,500	314,830,000	78,694,000	98,139,000	60,045,000	77,952,000
	Yield at price to company	5.51	5.18	5.30	4.98	5.40	5.14
	Yield at price to investor.	5.27	4.98	5.08	4.77	5.23	4.95
Bonds.....	Number of issues.....	28	30	7	7	10	6
	Par value.....	299,095,500	207,147,000	49,489,000	44,672,000	56,700,000	56,286,000
	Yield at price to company	5.62	5.29	5.48	5.00	5.44	5.20
	Yield at price to investor.	5.39	5.12	5.28	4.86	5.27	5.02
Equipment trust certificates.....	Number of issues.....	27	21	6	6	2	7
	Par value.....	122,395,000	101,683,000	29,205,000	47,467,000	3,345,000	21,666,000
	Yield at price to company	5.14	4.95	5.01	4.91	4.69	4.99
	Yield at price to investor.	4.84	4.71	4.73	4.67	4.55	4.77
Miscellaneous...	Number of issues.....	1	1	1	1	.....	.....
	Par value.....	1,000,000	6,000,000	.....	6,000,000	.....	.....
	Yield at price to company	7.40	5.40	.....	5.40	.....	.....
	Yield at price to investor.	6.20	4.86	.....	4.86	.....	.....

* On the per dollar basis throughout.

published in the *Journal of Land and Public Utility Economics* for February, 1927. All the essential items of information are given in the following summary table, so that it will be possible, by combining information in this table with the material in the initial study, to complete the record through December, 1926.

On the basis of new information, a few additions and corrections have been

made for the year 1925. In one or two quarters of 1925 these additions have brought about noticeable changes in the figures. In only a few instances, however, do they affect the totals for the year within the limits of two decimal places. The more refined figures are presented in this summary table, and the changes may be noted by comparison with the respective tables in the original study.

TABLE I (Continued): COST OF RAILWAY CAPITAL

		1925 Year	1926				
			Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Cost of financing on securities for which both price to company and to investor are available:	All securities.....						
	Number of issues†.....	54	49	13	13	11	12
	Par value.....	421,001,500	312,831,000	78,694,000	97,139,000	59,295,000	77,703,000
	Difference in price to company and to investor, per hundred.....	2.61	2.22	2.48	1.90	2.39	2.29
	$\frac{Z}{X}$	2.668	2.270	2.549	1.916	2.473	2.351
	$\frac{Z}{N}$	2.741	2.323	2.615	1.954	2.535	2.408
	Yield difference.....	.24	.20	.22	.21	.17	.19
	Number of issues.....	27	27	7	6	9	5
	Par value.....	298,295,500	205,148,000	49,489,000	43,672,000	55,950,000	56,037,000
	Difference in price to company and to investor, per hundred.....	2.95	2.63	2.97	2.47	2.48	2.57
Bonds.....	$\frac{Z}{X}$	3.044	2.695	3.079	2.497	2.571	2.638
	$\frac{Z}{N}$	3.140	2.770	3.177	2.561	2.639	2.709
	Yield difference.....	.23	.17	.20	.14	.17	.18
	Number of issues.....	26	18	6	6	2	7
	Par value.....	122,306,000	101,683,000	29,205,000	47,467,000	3,345,000	21,666,000
	Difference in price to company and to investor, per hundred.....	1.73	1.48	1.64	1.48	.91	1.35
	$\frac{Z}{X}$	1.752	1.496	1.666	1.495	.907	1.379
	$\frac{Z}{N}$	1.783	1.519	1.694	1.518	.916	1.398
	Yield difference.....	.30	.24	.28	.24	.14	.22
	Number of issues.....	1	1		1		
Equipment trust certificates.....	Par value.....	1,000,000	6,000,000		6,000,000		
	Difference in price to company and to investor, per hundred.....	4.75	1.00		1.00		
	$\frac{Z}{X}$	4.797	1.007		1.007		
	$\frac{Z}{N}$	5.040	1.017		1.017		
	Yield difference.....	1.20	.54		.54		
	Number of issues.....						
	Par value.....						
	Difference in price to company and to investor, per hundred.....						
	$\frac{Z}{X}$						
	$\frac{Z}{N}$						
Miscellaneous...	Yield difference.....						
	Number of issues.....						
	Par value.....						
	Difference in price to company and to investor, per hundred.....						
	$\frac{Z}{X}$						
	$\frac{Z}{N}$						
	Yield difference.....						
	Number of issues.....						
	Par value.....						
	Difference in price to company and to investor, per hundred.....						

† All issues sold at a loss to the banker are excluded here. In 1925, two issues, one of bonds with a total par value of \$800,000, and one of equipment trust certificates with a total par value of \$89,000, were sold at a loss. In 1926, three bond issues with a total par value of \$1,999,000 were sold at a loss.

‡ Z = the difference in price to company and to investor, expressed in dollars.

X = the total value at offering price, expressed in dollars.

|| Z = the difference in price to company and to investor, expressed in dollars.

N = the total price received by company, expressed in dollars.

The most noticeable change taking place between 1925 and 1926 was a continued fall in the cost of steam railway capital. The yield on all types of securities at the price received by the railroad company fell from an average of 5.44% to 5.23%, a money cost which, as anticipated in the original study, approximates very closely the rate of return earned by the industry as a whole in the year 1926. The cost of financing as such also declined, dropping from .24% per dollar per year in 1925 to .20% per dollar per year for 1926. In other words, of the total average cost to the company in

1926 for all types of securities, this cost varying from 5.18% (all securities for which both price to the company and price to the investor are available) to 5.23% (the average yield on securities for which price to the company only is available), the charge for financing was .20%, or $\frac{1}{5}$ of a cent per dollar, for capital borrowed during the year over the average maturity of these borrowings. In comparison with the above figure, .33% per dollar per year was the average cost of financing over the entire period, May, 1920, to December, 1926.

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COMMENTS ON LEGISLATION AND COURT DECISIONS

VALUATION BY THE INTERSTATE COMMERCE COMMISSION FOR RECAPTURE OF EXCESS EARNINGS

IN ONE of the most important cases since the Interstate Commerce Commission began the herculean task of determining the "value for rate-making purposes" of the country's railroads,¹ it has recently restated definite conclusions upon the principles and methods to govern valuations. In a 6 to 4 decision, *Excess Income of St. Louis and O'Fallon Railway Company*,² the Commission explicitly refused to give controlling weight to estimates of current reproduction costs, and held that the rate making value of the railroads "approaches more nearly the reasonable and necessary investment in the property than the cost of reproducing at a particular time".³ The opinions for the majority⁴ were notable for their insistence that a just determination of this great public problem depends not so much upon legal principles or abstractions as upon the application of sound

economic doctrines to the actual operation of the nation's transportation system.

The principal issue in the O'Fallon case was whether the railroad's net income during certain periods exceeded 6% of the value of the property and was therefore subject to "recapture" under the provisions of Section 15a of the Interstate Commerce Act.⁵ To make such a determination it was necessary for the Commission to find a "value" upon which its computations could be based. The Commission deliberately selected this case as a test,⁶ briefs and oral arguments being presented to the entire Commission by the outstanding valuation counsel of the country.⁷ In deciding that the O'Fallon had a net income subject to recapture, the Commission found the "value" of the property in the following manner: (1) Structures were estimated on the basis

¹ For a discussion of the nature and scope of the Commission's valuation activities see T. P. Artaud, "A Review of the Federal Valuation of Railroads," 32 *Yale Law Journal* 37 (1922). The Commission discussed its valuation methods *in extenso* in the case of the Texas Midland Railroad, 1 Val. Rep. 1, 75 I.C.C. 1.

² 124 I.C.C. 3, decided February 15, 1927.

³ *Ibid.*, p. 41.

⁴ Commissioner Meyer wrote the opinion for the majority, Commissioners Eastman and McManamy specially concurring in a separate opinion.

⁵ Section 15a requires the Commission to adjust rates so that carriers, as a whole or in groups, shall earn a fair return upon the aggregate value of their property, empowers the Commission to determine what percentage of aggregate value con-

stitutes a fair return, and authorizes the Commission to recover one-half of the net income of any carrier earning in excess of 6% on the value of its property, under rates fixed in accordance with Section 15a. The Supreme Court upheld the "recapture clause" in *Dayton-Goose Creek Railway v. United States*, 263 U. S. 456 (1924).

⁶ " . . . What we do in this case we must in principle do for all the railroads in the United States" (p. 26).

⁷ The public interest was represented by Donald R. Richberg, general counsel for the National Conference on Valuation of American Railroads, and John E. Benton, general solicitor for the National Association of Railroad and Utilities Commissioners. The carriers' position was presented by W. G. Brantley, Leslie Craven, and F. G. Dorety, all prominent valuation counsel.

of the cost to reproduce new, using 1914 unit prices. Such a computation results, in effect, in a figure not substantially different from original cost, since the price level for twenty years prior to 1914 was relatively stable.⁸ (2) Lands were valued at their "prevailing market value." (3) Structural additions since 1914 were added at actual cost. It will be seen that this view presents a compromise between the "prudent investment"⁹ theory and the current reproduction cost doctrine.

It is significant that in the 70 pages of the opinions there is little detailed discussion of the outstanding Supreme Court decisions upon valuation. The majority opinions, in defending the conclusion reached, rely almost not at all upon abstractions. "The controlling factor in the last analysis," wrote Mr. Commissioner Meyer, "is the Supreme Court's conception of what is just and in harmony with a sound public policy. Nor is there any abstract standard of justice that can be applied. *The question in many aspects is one of fact, and the answer, if it is to be wise and sound, requires knowledge of actual conditions and the consideration of practical results.*"¹⁰ He then presents the practical difficulties with the current reproduction

cost doctrine,¹¹ a doctrine which has found so much favor in recent years with the Supreme Court in local utility cases.¹² Such a basis for rate-making, he points out, would destroy stability of railroad income, produce violent fluctuations in rate levels, stimulate speculation in railroad shares, and give the carriers a constitutional right to rates far greater than the country could bear as a matter of economic fact, or than the carriers are willing to charge. Even one of the dissenting Commissioners expressly reenforces these conclusions as to the evil practical results of the reproduction cost theory.¹³

The prophecy is being freely made in railroad and financial circles that, upon appeal, the Supreme Court will "clip the Commission's wings" for its failure to follow what is conceived to be the Court's final conclusion on the use of the "enhanced-cost basis." On the other hand, representatives of shipper, consumer, and employee interests, foreseeing evil in a reversal of the Commission, are preparing to defend the conclusion before the Court and if necessary to follow the counsel of one of the dissentients¹⁴ by appealing to Congress for legislation to buttress the result.¹⁵ In any event, this issue is

⁸ "... The cost of producing and equipping a railroad in most parts of this country on June 30, 1914, was a fair average for at least the 20 years preceding. . . . On the whole, the 1914 cost was just about an average for those previous years during which the great bulk of the railroad property then in use had come into existence." *In re Texas Midland Railroad*, 75 I.C.C. 1, 140.

⁹ For the classic exposition, see the opinion by Mr. Justice Brandeis in *Southwestern Bell Telephone Co. v. Public Service Commission of Missouri*, 262 U. S. 276, 289 (1923); see also Donald R. Richberg, "A Permanent Basis for Rate Regulation," 31 *Yale Law Journal* 263 (1922). The separate concurring opinion of Commissioners Eastman and McManamy criticizes the majority for departing from the prudent investment standard.

¹⁰ *Op. cit.*, pp. 29, 30. Italics ours.

¹¹ For an answer to the objections see William L. Ransom, "The Valuation of Private Property for Public Uses," 2 *Journal of Land and Public Utility Economics* 1 (1926).

¹² Notably in *McCardle v. Indianapolis Water Co.*, 47 Sup. Ct. 144 (1926) and *Southwestern Bell Telephone Co. v. Public Service Commission*, *supra*.

¹³ "In much that is stated by the majority as to the effect of the valuation rule contended for by the carriers, I unreservedly concur. . . ." Aitchison, C., *op. cit.*, p. 64.

¹⁴ "If the law needs change, let those who made it change it." Hall, C., *op. cit.*, pp. 63, 64.

¹⁵ See statement issued by Senator G. W. Norris, *New York Times*, April 1, 1927.

likely to dominate the railroad scene in the immediate future.

The O'Fallon decision, it is apparent, presents anew the perennial problem of the relation of expert administrators to the courts, of economics to the law. To the minority, the duty of the expert is to follow the judiciary without question. The contrary view is ably expressed by Mr. Commissioner Eastman:

"It is here our duty to ascertain fair value for rate-making purposes. Such fair value is a concept which originated in an effort of the court to set limits to public regulation which would protect private property against confiscation. . . .

"In determining such questions, knowledge of pertinent facts and an experience which makes it possible to visualize the probable results of a particular public policy are quite as important as familiarity with the law books. It is an instance in which the law is influenced if not governed by the facts. When, therefore, the question relates to the

constitutional limits of the public regulation of railroads, an intimate knowledge of railroads, of their relations with and their importance to the shipping and investing classes and to the public generally, and of their past history and future prospects becomes of the highest consequence. . . . I cannot avoid the conclusion that the Commission would be derelict in its duty in this case if it should confine its attention . . . to past utterances of the court in more or less analogous cases and should neglect the illumination which is thrown upon the law by its own intimate knowledge of transportation affairs and problems. . . . After the court has heard what we have to say, it may decide that our conclusions as to the fundamental law are erroneous, and that will end the matter; but certainly we ought not to deprive the court of the help which it may gain from the special knowledge which it is our duty under the law to acquire."¹⁸

¹⁸ *Op. cit.*, pp. 50, 51.

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